35 years

European School of Oncology

Learning to care

ESMO GOOD SCIENCE BETTER MEDICINE BEST PRACTICE

ABC4

Bridging the Gap

Advanced Breast Cancer

Fourth ESO-ESMO International Consensus Conference

2-4 November 2017
Lisbon, Portugal

Coordinating Chair:
F. Cardoso, PT

Chairs:
E.P. Winer, US - L. Norton, US - A. Costa, IT/CH

Co-Chairs:
E. Senkus, PL - E. Papadopoulos, CY

Scientific Committee Members:
M.S. Aapro, CH - F. André, FR - N. Harbeck, DE

The ABC4 guidelines will be developed by ESO and ESMO

ESMO GOOD SCIENCE BETTER MEDICINE BEST PRACTICE

The ABC4 conference and guidelines are endorsed by

EUSOMA European Society of Breast Cancer Specialists

FLAM FEDERACIÓN LATINOAMERICANA DE MASTOLOGIA

The ABC4 conference is held

with support from

BCRF BREAST CANCER RESEARCH FOUNDATION

susan g. komen.

under the auspices of

OECI Organisation of European Cancer Institutes

UICC global cancer control

with official representatives of

ASCO American Society of Clinical Oncology

and is endorsed by

ESTRO European Society for RADIOTHERAPY & ONCOLOGY

ABC4 will be followed by the first meeting of the ABC GlobAlliance An ESO initiative on 4-5 November 2017

ABSTRACT BOOK

THE BREAST

www.elsevier.com/brst
An Associate Journal of the Australasian Society for Breast Disease: www.asbd.org.au
Affiliated with the European Society of Breast Cancer Specialists: www.eusoma.org
Official Journal of Breast Centres Network: www.BreastCentresNetwork.org
Amsterdam . Boston . London . New York . Oxford . Paris . Philadelphia . San Diego . St Louis

VOLUME 36 SUPPLEMENT 1 November 2017

THE BREAST

Advanced Breast Cancer Fourth International Consensus Conference (ABC4)

Guide for Authors

Submission to ***The Breast*** proceeds totally online via the Elsevier Editorial System page of this journal at http://ees.elsevier.com/thebreast/. Authors will be guided through the creation and uploading of the various files. Once the uploading is done, the system automatically generates an electronic (PDF) proof, which is then used for reviewing. All correspondence, including the Editor's decision and request for revisions, will be by e-mail. Authors may send queries concerning the submission process, manuscript status, or journal procedures to the editorial office at thebreast@elsevier.com

Availabel online at www.sciencedirect.com

ScienceDirect

Indexed/abstracted in: *Index Medicus, MEDLINE, ABI/Inform, Current Awareness in Biological Sciences, Current Contents/Clinical Medicine, EMBASE, Excerpta Medica National Library of Medicine (MEDLARS and MEDLINE), Research Alert, SCISEARCH, Science Citation Index, Scopus*

ELSEVIER

Amsterdam • Boston • London • New York • Oxford • Paris • Philadelphia • San Diego • St Louis

The Breast: Aims and Scope

The Breast is an international, multidisciplinary journal for researchers and clinicians, which focuses on translational and clinical research for the advancement of breast cancer prevention, diagnosis and treatment of all stages. The Editors welcome the submission of original research articles, systematic reviews, and viewpoint/commentary and debate articles, and correspondence on all areas of pre-malignant and malignant breast disease, including:

- Epidemiology and prevention
- Translational research, encompassing the use of new technologies, molecular biology, genetics and pathology
- Screening, early diagnosis, follow-up and response assessment: use of imaging, nuclear medicine and other technologies
- Medical oncology
- Radiation oncology
- Breast surgery
- Psycho-oncology
- Quality of life
- Survivorship
- Supportive care
- Palliative and end-of-life care
- Advocacy
- Breast Nursing
- Breast Units management and organization of breast care, including health economics

---

Author enquiries
You can track your submitted article at http://www.elsevier.com/track-submission. You can track your accepted article at http://www.elsevier.com/trackarticle. You are also welcome to contact Customer Support via http://support.elsevier.com.

Publication information. *The Breast* (ISSN 0960-9776). For 2017, volumes 31–36 (6 issues) are scheduled for publication. Subscription prices are available upon request from the Publisher or from the Elsevier Customer Service Department nearest you or from this journal's website (http://www.elsevier.com/brst). Further information is available on this journal and other Elsevier products through Elsevier's website: (http://www.elsevier.com). Subscriptions are accepted on a prepaid basis only and are entered on a calendar year basis. Issues are sent by standard mail (surface within Europe, air delivery outside Europe). Priority rates are available upon request. Claims for missing issues should be made within six months of the date of dispatch.
Orders, claims, and journal inquiries: Please visit our Support Hub page https://service.elsevier.com for assistance.

USA mailing notice: *The Breast* (ISSN 0960-9776) is published bimonthly by Elsevier Ltd. (P.O. Box 211, 1000 AE Amsterdam, The Netherlands). Periodicals postage paid at Jamaica, NY 11431 and additional mailing offices.
USA POSTMASTER: Send address changes to *The Breast*, Elsevier Customer Service Department, 3251 Riverport Lane, Maryland Heights, MO 63043, USA.

AIRFREIGHT AND MAILING in USA by Air Business Ltd., c/o Worldnet Shipping Inc., 156-15, 146th Avenue, 2nd Floor, Jamaica, NY 11434, USA.

The Breast has no page charges.

♾The paper used in this publication meets the requirements of ANSI/NISO Z39.48-1992 (Permanence of Paper).

Printed in the United Kingdom by Henry Ling Limited, at the Dorset Press, Dorchester, DT1 1HD.

The Breast 36 S1 (2017) S1

Contents lists available at ScienceDirect

The Breast

journal homepage: www.elsevier.com/brst

Welcome

Dear Colleagues,

The International Consensus Conference for Advanced Breast Cancer (ABC) has established itself as a major international breast cancer conference. Its primary aim is the development of international consensus guidelines for the management of ABC patients. These guidelines are based on the most up-to-date evidence and can be used to guide treatment decision making in many different health care settings globally, with the necessary adaptations due to different access to care.

The last meeting, which took place in Lisbon, Portugal in November 2015, brought together over 1200 participants from 84 countries around the world, including health professionals, patient advocates and journalists.

We believe that health professionals working closely together with patient advocates and with the strong support of media can raise awareness about the needs and challenges faced by this traditionally underserved and forgotten group of patients. ABC also aims to identify research priorities based on the most important areas of unmet need, analyse and discuss available data to provide the most accurate management recommendations, as well as influence policy makers and funding bodies and ultimately improve standards of care, survival and quality of life. Research and education, with accurate usage of available knowledge, throughout the world, are key to achieve these goals.

ABC guidelines are jointly developed by ESO (European School of Oncology) and ESMO (European Society of Medical Oncology) and guidelines or ABC conferences have been endorsed and supported by several other international oncology organizations such as EUSOMA (European Society of Breast Cancer Specialists), ESTRO (European Society of Radiation Oncology), ESGO (European Society of Gynaecological Oncology), UICC (Union International Contre le Cancer), SIS (Senologic International Society)/ISS (International School of Senology), FLAM (Federacion Latino-Americana de Mastologia), OECI (Organization of European Cancer Institutes), Susan G. Komen® and BCRF (Breast Cancer Research Foundation), and have official representation from ASCO.

The recent creation of the ABC Global Alliance, will also provide a much-needed platform for the development of important projects, aiming to strongly impact on the survival and quality of life of advanced breast cancer patients.

It is therefore with great enthusiasm that we invite you to attend the Advanced Breast Cancer Fourth ESO-ESMO International Consensus Conference (ABC4) that will take place in Lisbon, Portugal, on 2–4 November 2017, which will be followed by the first meeting of the ABC Global Alliance on 4 and 5 November 2017.

Fatima Cardoso
Coordinating Chair

The Breast 36 S1 (2017) S2–S3

Contents lists available at ScienceDirect

The Breast

journal homepage: www.elsevier.com/brst

General Information

Venue

ABC4 will be held at the CCL - Centro de Congressos de Lisboa, Praça das Industrias, Lisbon, Portugal.

Official Carrier

TAP PORTUGAL
A STAR ALLIANCE MEMBER

ESO is grateful to TAP Portugal who supported the conference as Official Carrier and offered discounted fares to our participants.

Acknowledgements

ESO wishes to express its appreciation and gratitude to the ABC4 Chairs for their support and vision in establishing this conference, all faculty members and panellists for their commitment and contribution to the programme, to The Breast and CancerWorld for their partnership in this initiative.

Organisational Team

Abstract submission	Luis Carvalho (2) lcarvalho@eso.net
Registration	Register online at www.abc-lisbon.org
	Laura Richetti (2) lrichetti@eso.net Luis Carvalho (2) lcarvalho@eso.net
Accommodation, optional tours and social event	Helder Carvalho (3) helder.carvalho@abreu.pt
Organisation, exhibition, satellite symposia and sponsorship	Francesca Marangoni (1) fmarangoni@eso.net
Programme secretariat	Dolores Knupfer (2) abc@eso.net Alexandra Zampetti (2) azampetti@eso.net
Social media	Corinne Hall (1) chall@eso.net
Communication	Gabriele Maggini (2) gmaggini@eso.net
Coordination	Chatrina Melcher (2) cmelcher@eso.net

1 European School of Oncology, Via Turati 29, 20121 Milano, Italy — ph +39 02 85464 532, fx 39 02 85464 545, www.abc-lisbon.org, www.eso.net

2 European School of Oncology, Piazza Indipendenza 2, 6500 Bellinzona, Switzerland — ph +41 91 820 0950, fx +41 91 820 0953, www.abc-lisbon.org, www.eso.net

3 Viagens Abreu SA, Av. 25 de Abril, 2, 2799-556 Linda-a-Velha, Portugal — ph +351 21 415 6120, fx +351 21 415 6383

No smoking policy

ABC4 is a tobacco-free event. All participants are kindly asked to respect the no-smoking policy.

CME Accreditation and Certificates

Participants will be entitled to receive a certificate of attendance at the close of the Conference by completing the online evaluation questionnaire.

The event has been accredited by the European Accreditation Council for Continuing Medical Education (EACCME) to provide the following CME activity for medical specialists. The EACCME is an institution of the European Union of Medical Specialists (UEMS). The evaluation of the event has been performed by the Accreditation Council of Oncology in Europe (ACOE) that acknowledged the quality of the scientific programme and its educational value.

The event is designated for a maximum of **15 European CME credits (ECMEC).**
Through an agreement between UEMS and the American Medical Association, physicians may convert EACCME credits to an equivalent number of AMA PRA Category 1 Credits™.

Furthermore, the conference has been accredited with **17 ESMO- MORA category 1 points**.

Third Party Media Policy

The policy that applies to all activities related to the news media during or in connection with ABC4 and is posted at www.abc-lisbon.org/pagine-interne/third-party-media-policy.html

The aim is to ensure that information distributed to the journalists is accurate and is issued at the correct times, complying with any embargoes that may be in place.

The policy applies to media events that are organised at the ABC4 venue and off-site, and all third parties are requested to adhere.

Abstract Book

This book includes abstracts submitted by the invited speakers and those proposed by the participants that were accepted for oral presentation, poster presentation or publication.

Abstracts which are part of the media coverage will be embargoed as indicated. These abstracts will thereafter be published on the ABC4 website when the embargo is lifted.

Abstracts were received for seven categories:

- Advanced breast cancer – Basic and Translational Research
- Advanced breast cancer – Nursing and advocacy
- Advanced breast cancer – Clinical issues: Medical oncology
- Advanced breast cancer – Clinical issues: Radiation oncology
- Advanced breast cancer – Clinical issues: Surgical oncology
- Advanced breast cancer – Clinical issues: Supportive and palliative care
- Advanced breast cancer – Clinical issues: Other topics

A prefix has been added to the abstract number to identify the type of presentation or acceptance:

IN: Abstracts submitted by the invited speakers
OR: Abstracts accepted for oral presentations
BP: Abstracts accepted as best poster presentations
PO: Abstracts accepted for poster presentations
PR: Abstracts accepted for inclusion in the abstract book (not presented at the conference)

Contents lists available at ScienceDirect

The Breast

journal homepage: www.elsevier.com/brst

High Patronage

Com o alto Patrocínio de Sua Excelência O Presidente da República

The European School of Oncology is proud to announce that the Conference is held under the High Patronage of His Excellency the President of the Portuguese Republic.

Endorsement and Auspices

ESMO GOOD SCIENCE BETTER MEDICINE BEST PRACTICE

ESO is pleased to announce that also the ABC4 guidelines will be developed jointly by ESO and ESMO and published simultaneously in *The Breast and Annals of Oncology* journals.

Furthermore, the ABC4 conference is endorsed by: EUSOMA European Society of Breast Cancer Specialists; FLAM Federación Latinoamericana de Mastología; International Society of Senology I.S.S. International School of Senology; ESTRO European Society for Radiotherapy & Oncology

held with support from BCRF Breast Cancer Research Foundation; Susan G. Komen; under the auspices of OECI Organisation of European Cancer Institutes; UICC global cancer control

is CME accredited by U.E.M.S.; and ESMO GOOD SCIENCE BETTER MEDICINE BEST PRACTICE

The ABC4 guidelines are endorsed by EUSOMA European Society of Breast Cancer Specialists; FLAM Federación Latinoamericana de Mastología; International Society of Senology I.S.S. International School of Senology; and will be submitted for endorsment to ESTRO European Society for Radiotherapy & Oncology

The ABC4 faculty includes official representatives appointed by ASCO American Society of Clinical Oncology

The Breast 36 S1 (2017) S5

Contents lists available at ScienceDirect

The Breast

journal homepage: www.elsevier.com/brst

Sponsors

ESO wishes to express its appreciation for the following sponsors for having granted their participation and support to ABC4.

Travel grants, support to the conference and to the patient advocacy activities

Participating organisations and companies

The Breast 36 S1 (2017) S6–S7

Contents lists available at ScienceDirect

The Breast

journal homepage: www.elsevier.com/brst

Award

The ABC Award is aimed at recognising a researcher, physician, nurse or patient advocate who has made an outstanding and impacting contribution in the field of advanced breast cancer throughout his/her career.

The **ABC2 award** - in recognition of his work on discovering fundamental, clinically-relevant biological and molecular mechanisms for metastases including site specificity, latency, self-seeding and the role of the microenvironment in colonization and drug resistance - was assigned to Joan Massagué.

The **ABC3 award** - in recognition for his work on metastatic breast cancer, especially improving the management of metastatic cancer to bone, resulting in preservation and improvement in quality of life of patients worldwide - was assigned to Robert E. Coleman.

The **ABC4 award** - in recognition for her work and dedication to advocacy specifically to advanced breast cancer patients will be assigned to **Musa Mayer** during the Award Ceremony on Thursday, 2 November at 17:40.

ABC4 Scientific Committee

Coordinating Chair

Fatima Cardoso, Breast Cancer Unit, Champalimaud Cancer Center, Lisbon, PT

Chairs

Alberto Costa, Scientific Director, European School of Oncology, Milan, IT and Bellinzona, CH
Larry Norton, Breast Cancer Programs, Memorial Sloan-Kettering Cancer Centre, New York, US
Eric P. Winer, Breast Oncology Center, Dana-Farber Cancer Institute, Boston, US

Co-chairs

Elzbieta Senkus, Dept. of Oncology and Radiotherapy, Medical University of Gdansk, Gdansk, PL
Evi Papadopoulos, Europa Donna, Nicosia, CY

Scientific Committee Members

Matti S. Aapro, IMO Clinique de Genolier, Institut Multidisciplinaire d'Oncologie, Genolier, CH
Fabrice André, Department of Medical Oncology, Gustave Roussy Institute, Villejuif, FR
Nadia Harbeck, Breast Centre, University of Munich, Munich, DE

Faculty members

Bertha Aguilar Lopez, ULACCAM, Mexico City, MX
Carlos H. Barrios, Department of Medicine, PUCRS School of Medicine, Porto Allegre, BR
Jonas Bergh, Department of Oncology-Pathology, Karolinska Institute, Stockholm, SE
Elizabeth Bergsten Nordström, Swedish Breast Cancer Association, Stockholm, SE
Laura Biganzoli, Department of Medical Oncology, Sandro Pitigliani Oncology Centre, Prato, IT
Christine B. Boers-Doets, CB Boers ORG. Wormer, NL and The Netherlands Leiden University Medical Center, Leiden, NL
Anna Cabanes, Susan G. Komen, Washington, US
Maria João Cardoso, Breast Unit, Champalimaud Cancer Center and MamaHelp, Lisbon, PT
Lisa A. Carey, Department of Hematology and Oncology, UNC Lineberger Comprehensive Cancer Center, North Carolina, US
Dian "CJ" M. Corneliussen-James, METAvivor Research and Support, Annapolis, US
Javier Cortés, Ramón y Cajal University Hospital, Madrid & Vall d'Hebron Institute of Oncology (VHIO), Madrid, ES
Giuseppe Curigliano, Division of Experimental Therapeutics, European Institute of Oncology, Milan, IT
Véronique Diéras, Gynaecology and Breast Department, Centre Eugène Marquis, Rennes, FR
Matthew J. Ellis, Lester and Sue Smith Breast Center, Baylor Clinic, Houston, US
Nagi S. El Saghir, NK Basile Cancer Institute, American University of Beirut Medical Center, Beirut, LB
Alexandru Eniu, Department of Breast Tumors, Cancer Institute "I. Chiricuta", Cluj-Napoca, RO
Lesley Fallowfield, Sussex Health Outcomes Research & Education in Cancer, Brighton & Sussex Medical School, University of Sussex, Brighton, UK
Prudence A. Francis, Division of Cancer Medicine, Peter MacCallum Cancer Centre, Melbourne, AU
Karen Gelmon, Department of Medical Oncology, BC Cancer Agency, Vancouver, CA
Mary K. Gospodarowicz, Department of Radiation Oncology, Princess Margaret Hospital, University of Toronto, Toronto, CA
Renate Haidinger, Brustkrebs Deutschland e.V., Munich, DE
Stephen R.D. Johnston, Breast, Lung & Medical Oncology Services CBU, The Royal Marsden NHS Foundation Trust and The Institute of Cancer Research, London, UK
Bella Kaufman, Oncology Institute, Sheba Medical Center, Tel Hashomer, IL
Smruti Koppikar, Department of Oncology, Bombay Hospital Institute of Medical Sciences, Lilavati Hospital and Asian Cancer Institute, Mumbai, IN

Ian E. Krop, Breast Oncology Center, Dana-Farber Cancer Institute, Boston, US
Danni Manzi, Breast Cancer Care, London, UK
Norbert Marschner, Department of Hematology and Oncology, Outpatient Cancer Center, Freiburg, DE
Musa Mayer, Metastatic Breast Cancer Alliance, New York, US
Shirley A. Mertz, Metastatic Breast Cancer Network US, Inverness, US
Gertrude Nakigudde, Uganda Women's Cancer Support Organisation, Kampala, UG
Birgitte V. Offersen, Department of Oncology, Aarhus University Hospital, DK
Shinji Ohno, Breast Oncology Centre, Cancer Institute Hospital, Tokyo, JP
Olivia Pagani, Breast Unit, Oncology Institute of Southern Switzerland, Bellinzona, CH
Shani Paluch-Shimon, Oncology Institute, Shaare Zedek Medical Centre, Jerusalem, IL
Frédérique Penault-Llorca, Department of Pathology, Jean Perrin Centre, Comprehensive Cancer Centre, Clermont Ferrand, FR
Aleix Prat, Hospital Clínic of Barcelona, University of Barcelona, Barcelona, ES
Hope S. Rugo, Breast Oncology and Clinical Trials Education, UCSF Helen Diller Family Comprehensive Cancer Center, San Francisco, US
Timo Schinköthe, CANKADO, Munich, DE
George W. Sledge, Division of Oncology, Stanford School of Medicine, Stanford, US
Danielle Spence, Breast Cancer Network Australia, Camberwell, AU
Christoph Thomssen, Clinic for Gynaecology, Martin-Luther-Universität, Klinikum Kröllwitz, Halle (Saale), DE
Nicholas C. Turner, Breast Cancer Now Research Centre at the Institute of Cancer Research, London, UK
Daniel A. Vorobiof, Sandton Oncology Centre, Johannesburg, ZA
Nikhil Wagle, Harvard Medical School, Dana-Farber Cancer Institute, Boston, US
Binghe Xu, Department of Medical Oncology, Chinese Academy of Medical Sciences & Peking Union Medical College, Beijing, CN

The Breast 36 S1 (2017) S8

Contents lists available at ScienceDirect

The Breast

journal homepage: www.elsevier.com/brst

Breast Cancer Patient Advocacy Programme

Representatives of breast cancer patient advocacy groups were warmly invited to participate in ABC4 and actively contribute to the scientific programme and consensus session.

Furthermore, in collaboration with the Breast Cancer Patient Advocacy Committee, including several leading breast cancer patient advocacy groups worldwide, specific additional patient advocacy sessions have been scheduled.

Coordinator: Fatima Cardoso, Breast Unit, Champalimaud Cancer Center, Lisbon, PT

Bertha Aguilar Lopez, ULACCAM, Mexico City, MX
Anna Cabanes, Susan G. Komen, Washington, US
Maria João Cardoso, MamaHelp Association, Lisbon, PT
Dian "CJ" M. Corneliussen-James, METAvivor Research and Support, Annapolis, US
Renate Haidinger, Brustkrebs Deutschland e.V., Munich, DE
Danni Manzi, Breast Cancer Care, London, UK
Musa Mayer, Metastatic Breast Cancer Alliance, New York, US
Shirley A. Mertz, Metastatic Breast Cancer Network US, Inverness, US
Gertrude Nakigudde, Uganda Women's Cancer Support Organisation, Kampala, UG
Evi Papadopoulos, Evi Papadopoulos, Europa Donna, Nicosia, CY
Danielle Spence, Breast Cancer Network Australia, Camberwell, AU

Breast Cancer Patient Advocacy Committee:

Breast Cancer Patient Advocacy Sessions

Thursday, 2 November

9:00-10:30	**Patient advocacy session: Direct patient involvement in ABC research** Panellists: Bertha Aguilar Lopez, MX - Jonas Bergh, SE - Matthew J. Ellis, US - Shirley A. Mertz, US - Danielle Spence AU - Nikhil Wagle, US	Chairs: Bertha Aguilar Lopez, MX - Anna Cabanes, US - Shirley A. Mertz, US
11:00-12:30	**Patient advocacy session: Survivorship 101: Work, finances, home and emotional support**	Chairs: Danni Manzi, UK - Gertrude Nakigudde, UG and Evi Papadopoulos, CY
18:00-19:30	**Patient advocacy session: Registries, databases and statistical modelling: making MBC count**	Chairs: Musa Mayer, US and Danielle Spence, AU

Friday, 3 November 2017

18:00-19:30	**Patient advocacy session: ABC Advocacy: Managing side effects, sexual issues and fertility**	Chairs: Dian "CJ" M. Corneliussen-James, US and Renate Haidinger, DE

Saturday, 4 November 2017

11:00-11:15	**Report from ABC Patient Advocacy Committee**	Danielle Spence, AU

The Breast 36 S1 (2017) S9–S12

Contents lists available at ScienceDirect

The Breast

journal homepage: www.elsevier.com/brst

Programme

Thursday, 2 November

9:00-10:30	**Patient advocacy session: Direct patient involvement in ABC research** Panellists: Bertha Aguilar Lopez, MX - Jonas Bergh, SE - Matthew J. Ellis, US - Shirley A. Mertz, US - Danielle Spence AU - Nikhil Wagle, US	Chairs: Bertha Aguilar Lopez, MX - Anna Cabanes, US - Shirley A. Mertz, US
9:00-10:30	**Sponsored satellite symposium 1 (details are available on page S13)**	
10:30-11:00	Coffee break	
11:00-12:30	**Patient advocacy session: Survivorship 101: Work, finances, home and emotional support**	Chairs: Danni Manzi, UK -Gertrude Nakigudde, UG and Evi Papadopoulos, CY
11:00-11:15	Work means more than money	Evi Papadopoulos, CY
11:15-11:30	Discusssion	
11:30-11:45	The support of the other side	Lesley Fallowfield, US
11:45-12:00	Discusssion	
12:00-12:15	How can I swim in a storm	Gertrude Nakigudde, UG
12:15-12:30	Discusssion	
11:00-12:30	**Sponsored satellite symposium 2 (details are available on page S13)**	
12:30-13:30	Lunch	
13:30-14:30	**Opening session**	Chairs: Fatima Cardoso, PT and Larry Norton, US
13:30-13:40	Welcome to Lisbon	National authorities
13:40-14:00	Opening and introduction	Fatima Cardoso, PT
14:00-14:30	Keynote lecture - Living two roles: Oncologist and patient	Bella Kaufman, IL
14:30-15:25	**Long term remissions: Challenges and controversies**	Chairs: Anna Cabanes, US and Olivia Pagani, CH
14:30-14:45	Management issues: How and until when to treat? [abstract IN03]	Christoph Thomssen, DE
14:45-15:00	Is family planning (fertility, adoption) out of the question? [abstract IN04]	Shani Paluch-Shimon, IL
15:00-15:15	Impact on legal and professional lives [abstract IN05]	Elizabeth Bergsten Nordström, SE
15:15-15:25	Discussion	
15:25-16:05	**Best abstract presentations**	Chairs: Alberto Costa, IT/CH and Danielle Spence, AU
15:25	Analysis of the gaps on metastatic breast cancer global policies and advocacy efforts to support policy development across the patient journey [abstract OR33]	Maia Thrift-Perry, US
15:35	Impact of disease progression status on time to deterioration of patient reported health related quality of life in first line ER+ HER2-ve advanced/ metastatic breast cancer patients in the PALOMA-2 study [abstract OR65]	Nadia Harbeck, DE
15:45	Effect of exercise on cardiovascular fitness and quality of life outcomes in advanced breast cancer patients [abstract OR135]	Eduardo Oliveira, PT
15:55-16:05	Discussion	

16:05-16:30	Coffee break	
16:30-17:40	**Optimizing anti-HER-2 therapies for ABC**	Chairs: Elzbieta Senkus, PL and Eric P. Winer, US
16:30-16:45	Optimal sequence with and without all available agents [abstract IN06]	Ian E. Krop, US
16:45-17:00	Overcoming resistance to anti-HER2 therapies [abstract IN07]	Karen Gelmon, CA
17:00-17:15	Potential role of immunotherapy [abstract IN08]	Javier Cortés, ES
17:15-17:30	Will biosimilars become standard? [abstract IN09]	Smruti Koppikar, IN
17:30-17:40	Discussion	
17:40-18:00	**ABC Award and lecture** Silent voices speak: An advocate's journey [abstract IN01]	Chair: Larry Norton, US - Awardee: Musa Mayer, US
18:00-19:30	**Patient advocacy session: Registries, databases and statistical modelling: making MBC count**	Chairs: Musa Mayer, US and Danielle Spence, AU
18:00-18:10	Introduction and Australia STAR project	Danielle Spence, AU
18:10-18:30	Estimation of the number of women living with metastatic breast cancer in the United States	Musa Mayer, US
18:30-18:50	The new German cancer registry	Norbert Marschner, DE
18:50-19:10	Breast Cancer Care UK	Danni Manzi, UK
19:10-19:30	Discussion	
18:00-19:30	**Sponsored satellite symposium 3 (details are available on page S13)**	
19:30		
Friday, 3 November		
9:00-9:55	**The new management of luminal ABC**	Chairs: Bertha Aguilar Lopez, MX and Binghe Xu, CN
9:00-9:15	Best sequence of available therapies [abstract IN10]	Nadia Harbeck, DE
9:15-9:30	Management of new side effects [abstract IN11]	Carlos H. Barrios, BR
9:30-9:45	Mechanisms of resistance to endocrine and biological agents [abstract IN12]	Stephen R.D. Johnston, UK
9:45-9:55	Discussion	
9:55-10:20	Coffee break	
10:20-11:30	**Clinical challenges**	Chairs: Jonas Bergh, SE and Renate Haidinger, DE
10:20-10:35	Metronomic chemotherapy: A good old friend [abstract IN13]	Nagi S. El Saghir, LB
10:35-10:50	Maintenance therapy (CT, ET, biologics) [abstract IN14]	Prudence A. Francis, AU
10:50-11:05	Oral drugs: Challenges for the oncology nurse [abstract IN15]	Christine B. Boers-Doets, NL
11:05-11:20	ABC elderly patient management [abstract IN16]	Laura Biganzoli, IT
11:20-11:30	Discussion	
11:30-12:25	**Inflammatory advanced breast cancer**	Chairs: Maria João Cardoso, PT and Gertrude Nakigudde, UG
11:30-11:45	Biology of inflammatory breast cancer [abstract IN17]	Frédérique Penault-Llorca, FR
11:45-12:00	Extensive cutaneous metastases: A separate entity? [abstract IN18]	Giuseppe Curigliano, IT
12:00-12:15	The role of different radiation techniques [abstract IN19]	Birgitte V. Offersen, DK
12:15-12:25	Discussion	
12:25-13:30	Lunch and **poster session**	
13:30-14:25	**Lost in translation!**	Chairs: Dian "CJ" M. Corneliussen-James, US and Daniel A. Vorobiof, ZA
13:30-13:45	Multigene testing: Aid or clinical nightmare [abstract IN20]	Fabrice André, FR

13:45-14:00	The role of ctDNA [abstract IN21]	Nicholas C. Turner, UK
14:00-14:15	Precision/personalized medicine: Hopes & hypes [abstract IN22]	George W. Sledge, US
14:15-14:25	Discussion	
14:25-15:35	**Supportive and palliative care**	Chairs: Matti S. Aapro, CH and Musa Mayer, US
14:25-14:40	Management of neurotoxicity [abstract IN23]	Matti S. Aapro, CH
14:40-14:55	Peritoneal carcinomatosis and ascites: Best practices [abstract IN24]	Véronique Diéras, FR
14:55-15:35	End-of-life communication: Patient and health care provider perspectives	
14:55-15:10	Part I [abstract IN25]	Lesley Fallowfield, UK
15:10-15:25	Part II [abstract IN26]	Musa Mayer, US
15:25-15:35	Discussion	
16:00-17:00	**A world of contrasts!**	Chairs: Fatima Cardoso, PT and Shirley A. Mertz, US
16:00-16:15	Access to radiation worldwide [abstract IN27]	Mary K. Gospodarowicz, CA
16:15-16:30	Shortage of drugs: Solutions [abstract IN28]	Alexandru Eniu, RO
16:30-16:45	eHealth: Friend or foe [abstract IN29]	Timo Schinköthe, DE
16:45-17:00	Discussion	
17:00-18:00	**Management of triple negative ABC**	Chairs: Shinji Ohno, JP and E. Papadopoulos, CY
17:00-17:15	What's new in biology [abstract IN30]	Aleix Prat, ES
17:15-17:30	The role of immunotherapy [abstract IN31]	Hope S. Rugo, US
17:30-17:45	New kids on the block: CDKi, ARi, PARPi [abstract IN32]	Lisa A. Carey, US
17:45-18:00	Discussion	
18:00-19:30	**Patient advocacy session: ABC Advocacy: Managing side effects, sexual issues and fertility**	Chairs: Dian "CJ" M. Corneliussen-James, US and Renate Haidinger, DE
18:00-18:15	How can physicians help to avoid or treat side effects?	Christoph Thomssen, DE
18:15-18:30	How can patients help to avoid or treat side effects?	Renate Haidinger, DE
18:30-18:45	Discussion	
18:45-19:00	Intimacy - starting over	Dian "CJ" M. Corneliussen-James, US
19:00-19:15	Fertility - the joys and the risks	Dian "CJ" M. Corneliussen-James, US
19:15-19:30	Discussion	
18:00-19:30	**Sponsored satellite symposium 4 (details are available on page S14)**	
Saturday, 4 November		
8:30-10:30	**Consensus session (part I)**	ABC4 chairs, scientific committee members and panellists
10:30-11:00	Coffee break	
11:00-11:15	**Report from ABC Patient Advocacy Committee**	Danielle Spence, AU
11:15-12:45	**Consensus session (part II)**	ABC4 chairs, scientific committee members and panellists
12:45-13:00	**Close**	

A/V Recording during the Conference is prohibited.

Consensus panellists

Matti S. Aapro, CH
Bertha Aguilar Lopez, MX
Fabrice André, FR
Carlos H. Barrios, BR
Jonas Bergh, SE
Laura Biganzoli, IT
Christine B. Boers-Doets, NL
Fatima Cardoso, PT
Maria João Cardoso, PT
Lisa A. Carey, US
Javier Cortés, ES
Alberto Costa, IT/CH
Giuseppe Curigliano, IT
Véronique Diéras, FR
Nagi S. El Saghir, LB
Alexandru Eniu, RO
Lesley Fallowfield, UK
Prudence A. Francis, AU
Karen Gelmon, CA
Mary K. Gospodarowicz, CA
Nadia Harbeck, DE
Stephen R.D. Johnston, UK
Bella Kaufman, IL
Smruti Koppikar, IN
Ian E. Krop, US
Musa Mayer, US
Gertrude Nakigudde, UG
Larry Norton, US
Birgitte V. Offersen, DK
Shinji Ohno, JP
Olivia Pagani, CH
Shani Paluch-Shimon, IL
Evi Papadopoulos, CY
Frédérique Penault-Llorca, FR
Aleix Prat, ES
Hope S. Rugo, US
Elzbieta Senkus, PL
George W. Sledge, US
Danielle Spence, AU
Christoph Thomssen, DE
Daniel A. Vorobiof, ZA
Eric P. Winer, US
Binghe Xu, CN

The Breast 36 S1 (2017) S13–S14

Contents lists available at ScienceDirect

The Breast

journal homepage: www.elsevier.com/brst

Sponsored Satellite Symposia

Thursday, 2 November

9:00-10:30	Sponsored satellite symposium 1 **AstraZeneca** **Illuminating a new pathway in breast cancer**	AstraZeneca
09:00	The guiding light – meeting the needs of the patient	
09:05	Welcome and introduction	Speaker: Christian Jackisch, DE
09:10	Highlighting a new target in breast cancer – DNA damage response	Cristina Cruz, ES
09:25	Shining the light on a new breast cancer paradigm	Sibylle Loibl, DE
09:35	Opportunity for questions	Chair: Christian Jackisch, DE
09:45	PARP inhibitors – a spark for change in breast cancer management	Pierfranco Conte, IT
10:05	In the spotlight – the use of *BRCA* in clinical practice	Panel discussion – Chair: Sibylle Loibl, DE
10:15	Opportunity for questions	Chair: Christian Jackisch, DE
10:25	Summary and close	Christian Jackisch, DE
	Symposium faculty: Cristina Cruz, Institute of Oncology, Barcelona, ES Pierfranco Conte, Istituto Oncologico Veneto, Padova, IT Christian Jackisch, Sana Klinikum Offenbach, Offenbach, DE Sibylle Loibl, German Breast Group, Neu-Isenburg, DE	
11:00-12:30	Sponsored satellite symposium 2 **Novartis** **Patient-centric treatment decisions in clinical practice: Harnessing the power of combination therapy** Chair: D. Lüfner, DE	NOVARTIS
11:00	Joining forces for efficacy: The current state of targeted therapy for HR+, HER2– advanced breast cancer	Speaker: Luis Costa, PT
11:15	Patterns, combinations, and sequences: Case-based discussion on treatment decisions for HR+, HER2– advanced breast cancer	*Case Presenter and Moderator*: Diana Lüftner, DE *Panelists*: Luis Costa, PT - Guenther Steger, AT
12:10	Q & A discussion	*Moderator*: Guenther Steger, AT
12:20	Forging future understandings	Speaker: Luis Costa, PT
	Symposium faculty: Luis Costa, Hospital Santa Maria, Lisbon, PT Diana Lüftner, Humboldt University, Berlin, DE Guenther Steger, Medical University of Vienna, Vienna, AT	
18:00-19:30	Sponsored satellite symposium 3 **Pfizer** **A united vision for mBC: Changing the treatment paradigm with CDK4/6 inhibitors** Chair: Antonio Llombart-Cussac, ES	Pfizer Oncology
18:00	Welcome and introduction	Antonio Llombart-Cussac, ES

18:05	A united vision: Guiding principles in the management of breast cancer	Günther Steger, AT
18:35	Challenging current perceptions in HR+/HER2– mBC	Antonio Llombart-Cussac, ES
18:55	A glimpse into the therapy management of CDK4/6 inhibitors	Johannes Ettl, DE
19:15	Panel discussion and Q&A	All faculty
19:25	Closing remarks	Antonio Llombart-Cussac, ES

Symposium faculty:
Johannes Ettl, Technical University of Munich, Munich, DE
Antonio Llombart-Cussac, University Hospital Arnau de Vilanova, Valencia, ES
Günther Steger, Medical University of Vienna, Vienna, AT

Friday, 3 November

18:00-19:30	Sponsored satellite symposium 4 **Celgene** **The evolving sequence of therapies, moving forward in mBC: All chemotherapies are not created equally** Chair: G. Arpino, IT	
18:00–18:10	Welcome and objectives	Grazia Arpino, IT
18:10–19:00	Interactive patient case series: Improving how we manage patients with mBC	Frederik Marme, DE Marina Cazzaniga, IT Eva Ciruelos, ES
	Indolent mBC: Are we making optimal use of all our treatment options?	
	Rapidly progressive mBC: Identifying the correct treatment sequence in these challenging patients	
	Treating triple negative mBC: Clinical considerations for the use of Abraxane	
19:00–19:25	Improving disease outcomes in patients with mBC: Choosing the right algorithm Panel and audience discussion of the patient case study series	
19:25–19:30	Summary and close	Grazia Arpino, IT

Symposium faculty:
Grazia Arpino, University of Naples Federico II, IT
Maria Elena Cazzaniga, San Gerardo Hospital, Monza, IT
Eva Ciruelos, University Hospital 12 de Octubre, Madrid, ES
Frederik Marme, Universität Heidelberg, Heidelberg, DE

The Breast 36 S1 (2017) S15–S16

Contents lists available at ScienceDirect

The Breast

journal homepage: www.elsevier.com/brst

Abstract Presenters

Roberto Agresti, Istituto Nazionale dei Tumori, Breast Surgery Unit, Milan, IT
Mary Ajango, Young Surviva Coalition, National Programs Department, New York, US
Teodora Alexa-Stratulat, Regional Institute of Oncology, Medical Oncology Department, Iasi, RO
Claudia Arce Salinas, Instituto Nacional de Cancerologia, Medical Oncology Department, Mexico City, MX
Ekaterine Arkania, Institute of Clinical Oncology, Chemotherapy and Clinical Rsearch Department, Tblisi, GE
Rania Azmi, Fadia Survive & Thrive Association, MBC Patients Advocacy, Kuwait City, KW
Aditya Bardia, Massachusetts General Hospital, Harvard Medical School, Harvard, US
Elina Beleva, Medical University Plovdiv and University Hospital Sveti Georgi, Clinical Oncology Department and Clinic of Medical Oncology, Plovdiv, BG
Anne Sofie Brems-Eskildsen, University Hospital of Aarhus, Oncology Department, Aarhus, DK
Russell Burcombe, Kent Oncology Center, Maidstone & Tunbridge Wells NHS Trust, Maidstone, UK
Maria Caleffi, FEMAMA, Management Department, Porto Alegre, BR
Marina Elena Cazzaniga, ASST Monza, Research Unit, Phase I trials and Medical Oncology, Monza, IT
Runcie Chikeruba Wilson Chidebe, Project Pink Blue Health & Psychological Trust Center, Patient Advocacy and Research Abuja, NG
Pierfranco Conte, Istituto Oncologico Veneto, Division of Medical Oncology, Padua, IT
Giuseppe Curigliano, European Institute of Oncology, Division of Experimental Therapeutics, Milan, IT
David da Silva Dias Centro Hospitalar Do Algarve, Medical Oncology Department, Faro, PT
MJ DeCoteau, Rethink Breast Cancer Breast Cancer Department, Toronto, CA
Lidia Delrieu, University Claude Bernard and Leon Berard Cancer Center, Inter-University Laboratory of Human Movement Biology and Department of Cancer and Environment, Villeurbanne and Lyon FR
Abhinav Deshpande, Gujarat Cancer and Research Institute, Surgical Oncology Department, Ahmedabad, IN
Vítor Devezas, Centro Hospitalar de Sao Joao, General Surgery Department, Porto, PT
Farrukh Djuraev, Tashkent Medical Academy, Department of Oncology, Tashkent, UZ
Nagi S. El Saghir, American University of Beirut Medical Center, Naef K. Basile Cancer Center, Beirut, LB
Sander Ellegard, University Hospital of Linköping, Oncology Department, Linköping, SE
Corrine Ellsworth Beaumont, Worlwide Breast Cancer, Executive Department, Lewisville, US
Craig Faucette, Canadian Breast Cancer Network, Operations Department, Ottawa, CA
Filipa Ferreira Pereira, Instituto Portugue de Oncologia do Porto, Medical Oncology Department, Porto, PT
Ahmed Gaballah, Ain Shams University Hospital, Department of Clinical Oncology, Cairo, EG
Janine Guglielmino, Living Beyond Breast Cancer, Programms and Partnerships Department, Bala Cynwyd, US
Gurcan Gunaydin, Hacettepe University Cancer Institute, Department of Basic Oncology, Ankara, TR
Mohamed Hablas, Gharbia Cancer Society, Medical Oncology and Palliative Care Department, Tanta, EG
Nadia Harbeck Brustzentrum der Unirsitaet Muenchen (LMU), Obstetrics and Gynaecological Department, Munich, DE
Sharon Hensley Alford, IBM, Watson Health, Dearborn, US
Yoshiya Horimoto, Juntendo University School of Medicine, Department of Breast Oncology, Tokyo, JP
Loay Kassem, Kasr El Aini, Department of Clinical Oncology and Nuclear Medicine, Cairo, EG
Lika Katselashvili, Research Institute of Clinical Medicine, Oncology Department, Tblisi, GE
Daan Khambri, Dr. M. Djamil Hospital, Oncology Division, Padang, IN
Pooja Khullar, Batra Hospital and Medical Research Centre, Radiation Oncology Department, New Dehli, IN
Yuichiro Kikawa, Kobe City Medical Center General Hospital, Department of Breast Surgery, Kobe-City, JP
Elena Kovalenko, Russia Oncology Center Named after NN Blochin, Chemotherapy Department, Moscow, RU
Matteo Lambertini, Institut Jules Bordet, Breast Cancer Translational Research Laboratory, Brussels, BE
Maria Leadbeater, Chesterfield Royal Hospital, Macmillan Cancer Centre, Calow, UK
Claudia Lefeuvre-Plesse, Centre Eugene Marquis, Medical Oncology Department, Rennes, FR
Norbert Marschner, Praxis für interdisziplinäre Onkologie & Hämatologie, Oncology Department, Freiburg, DE
Michelle Martinez-Montemayor, Universidad Central del Caribe, School of Medicine, Department of Biochemistry, Bayamon, PR
Ginny Mason, IBC Research Foundation, West Lafayette, US
Ana Leonor Matos Hospital Sao Francisco Xavier, Internal Medicine and Medical Oncology Department, Lisbon, PT
Christian Maurer, Institut Jules Bordet, Oncology Clinic, Breast Department, Brussels, BE
Tahir Mehmood, Shaukat Khanum Memorial Cancer Hospital and Research Centre, Radiation Oncology Department, Lahore, PK
Nesrine Mejri Turki, Abderrahmen Mamo Hospital, Department of Medical Oncology, Ariana, TU
Noriko Miwa, Nishiwaki Municipan Hospital, Breast Surgical Oncology Department, Nishiwaki, JP
Thomas Albert Ndaysaba, Partners in Health, Poser - Programme on social and economic rights, Kigali, RW
Maria Tereza Nieto-Coronel, Instituto Nacional de Cancerologia, Medical Oncology Department, Mexico City, MX
Nanuli Ninashvili, Tbilisi State Medical University, Epidemiology and Biostatistics Department, Tblisi, GE
Eduardo Oliveira, Mama Help, Physical Exercise Department, Porto, PT
Timothy J. Pluard, Saint Luke's Cancer Institute, Koontz Center for Advanced Breast Cancer, Kansas City, US

Catherine Priestley, Breast Cancer Care, Nursing Department, London, UK
Eliza Puente, Asociacion Mexicana contra el cancer de mama AC, Management Department, Mexico City, MX
Sandra Radenkovic, Institute of Oncology and Radiology of Servia, Department of Radiation Oncology, Belgrade, RS
Marga Schrieks, Dutch Breast Cancer Patient Organisation, Quality of Care Department, Utrecht, NL
Lennard Schröder, Ludwig Maximiliam University, Gynecology and Obstetrics Department, Munich, DE
Daniele Screpis, Sacro Coure Hospital, Orthopedic Department, Negrar, IT
Asmin Sha, Al Iqbal Hospital, Pathology Department, Thrissurm IN
Samir Shehata, Assiut University, Medical Oncology Department, Assiut, EG
Chikako Shimizu, National Cancer Center Hospital, Department of Breast and Medical Oncology, Tokyo, JP
Kyrillus Shohdy, Kasr Alainy School of Medicine, Clinical Oncology Department, Cairo, EG
Danielle Spence, Breast Cancer Network Australia, Policy Department, Carberwell, AU
Marie Sundquist, County Hospital, Breast Unit, Kalmar, SE
Haruko Takuwa, Shiga Medical Center for Adults, Breast Surgery Department, Moriyama-shi, JP
Marina Teahon, Union for International Cancer Control (UICC) Capacity Building Department, Geneve, CH
Christoph Thomssen, Martin Luther University Halle-Wittenburg, Department of Gynecology, Halle, DE
Maia Thrift-Perry, Pfizer, International Public Affairt Department, New York, US
Kaori Ushimado, Fujita Health University, Breast Surgery Department, Aichi, JP
Giulia Viale, European Institute of Oncology, Division of Early Drugs Development, Milan, IT
Mitsugu Yamamoto, Hokkaido Cancer Center, Department of Breast Surgery, Sapporo, JP
Sena Yamamoto, Social Medical Cooperation Hakuaikai, Sagara Hospital Department of Nursing, Kagoshima, JP

The Breast 36 S1 (2017) S17–S18

Contents lists available at ScienceDirect

The Breast

journal homepage: www.elsevier.com/brst

Poster Session

BP34 #Pacientesnocontrole (patients in control): Campaign to increase access to metastatic breast cancer (mbc) treatment in Brazil. Maira Caleffi, BR

PO66 Adverse events (AE) of targeted agents added to endocrine therapy in patients with hormone receptor-positive metastatic breast cancer: A systematic review and meta-analysis. Matteo Lambertini, BE

BP67 Characteristics of the metastatic breast cancer population with PIK3CA mutation in the randomized phase II study SAFIR02 breast (UCBG- 0105/ 1304). Claudia Lefeuvre-Plesse, FR

PO36 Fostering innovation in advocacy for metastatic breast cancer. Marina Teahon, CH

PO37 Public hearings and debate cycles for parliamentarians on breast cancer. Maira Caleffi, BR

PO38 A study of nursing provision and models of care for people diagnosed and living with metastatic breast cancer in Britain: What are the implications for the practice? and what role does patient advocacy play? Catherine Priestley, UK

PO39 Educate-empower-advocate: A new model for advocacy and creating change for women with metastatic breast cancer. MJ DeCoteau, CA

PO40 Patient navigation: Mitigating the surge of advanced breast cancer in sub-Saharan Africa. Runcie Chikeruba Wilson Chidebe, NG

PO41 BC III and IV treatment in Brazil: Differences between public health, supplementary health and iternational protocol recommendations. Maira Caleffi, BR

PO42 The unmet information, support and financial needs of women with metastatic breast cancer in Australia: Results of two breast cancer network Australia studies. Danielle Spence, AU

PO43 Tanto por hacer. Eliza Puente, MX

PO44 Social media storytelling as an advocacy and support tool for people living with metastatic breast cancer. Janine Guglielmino, US

PO45 Breast cancer knowledge and quality of life among participants of a breast cancer support group in rural Ruwanda. Thomas Albert Ndaysaba, RW

PO46 Building a voice for metastatic breast cancer patients through a multi-year awareness campaign. Craig Faucette, CA

PO47 Creating a novel drug navigation tool for metastatic breast cancer drugs in Canada. Craig Faucette, CA

PO48 Share decision making for better patient participation in advanced breast cancer care. Marga Schrieks, NL

PO50 Coping with metastatic breast cancer: The patients' perspective in a Brazilian cancer center. Maira Caleffi, BR

PO51 Clinical study to improve patient-hcp communication & engagement for newly diagnosed metastatic breast cancer patients. Corrine Ellsworth Beaumont, US

PO53 No lump required: A patient driven inflammatory breast cancer reserach initiative using the peer platform. Ginny Mason, US

PO54 The world is not enough: The twilight of MBC patients' needs. Rania Azmi, KW

PO57 Mesenchymal circulating tumour cell analysis to predict efficacy of eribulin for metastatic breast cancer patients. Yoshiya Horimoto, JP

PO58 Regulation of stemness properties by ganoderma lucidum extract in inflammatory breast cancer cells via STAT3 regulation. Michelle Martinez-Montemayor, PR

PO59 IL-2 mediated improvement of cell antitumor activity in advanced breast cancer patients. Sandra Radenkovic, RS

PO60 Influence of lipophilic components of matcha-tea extract on PPAR γ dependent cell proliferation. Lennard Schröder, DE

PO61 The identification of the genes concerning to the distant metastasis of TNBC - the interaction with AR as an index. Noriko Miwa, JP

PO63 Cancer associated fibroblasts display phenotypic and functional features that resemble circulating fibrocytes with constitute a nove subset of MDSCs. Gurcan Gunaydin, TR

PO68 First-line ribociclib plus letrozole for postmenopausal women with HR+, HER2-ABC: MANALEESA-2 safety results. Pierfranco Conte, IT

PO69 Overall survival and patient-reported impairment by fatigue, pain and treatment time in patients with advanced breast cancer in routine practice - results from the prospective German TMK cohort study. Norbert Marschner, DE

PO70 Herceptin alone in comparison with herceptin combined evorilimus in Asian patients with HER2+ breast cancer. Farrukh Djuraev, UZ

PO71 ERBB2 amplification level and PTPN2 gain as potential prognostic factors in metastatic HER2-positive breast cancer treated with trastuzumab. Sander Ellegard, SE

PO72 Triplet combination of endocrine therapy with CDK 4/6 inhibitor, ribociclib, and mTOR inhibitor, everolimus in HR+, HER2-ABC: Results from the dose-expansion cohort. Aditya Bardia, US

PO73 Efficacy and safety of palbociclib (PAL) pus fulvestrant (F) by geographic region in women with endocrine-resistant hormone receptor-positive (HR+), human epiderman growth factor receptor 2-negative (HER2-) advanced breast cancer (ABC) from PALOMA-3. Nadia Harbeck, DE

PO74 Efficacy and safety of platinum and metronomic cyclophosphamide in triple negative breast cancer. Giulia Viale, IT

PO75 Retrospective analysis of advanced luminal breast cancer patients treated with endocrine therapy (ET) and palbociclib within a compassionate use programme. Christian Maurer, BE

PO76 Preliminary data from a prospective non-interventional study to characterize real-world treatment patterns and outcomes of women with ER +/HER2-advanced/ metastatic breast cancer. Nadia Harbeck, DE

PO77 Metronomic chemotherapy (mCHT) in HER2-ve advanced breast cancer (ABC) patients (pts): When care objectives meet patients' need. preliminary results of the VICTOR-6 study. Marina Elena Cazzaniga, IT

PO78 Randomized prospective study: Paclitaxel every-3-weekly paclitaxel and versus weekly vinorelbine in metastatic breast cancer. Lika Katselashvili, GE

PO79 Real world prescription patterns in metastatic HR+ breast cancer. Analysis from Instituto Nacional de Cancerologia, Mexico City. Claudia Arce Salinas, MX

PO80 Efficacy of first line regimens in metastatic breast cancer patients. Real world evidence from Instituto Nacional de Cancerologia, Mexico City. Maria Tereza Nieto-Coronel, MX

PO81 Ribociclib and endocrine therapy (ET) in hormone receptor-positive (HR+), human epidermal growth factor receptor 2-negative (HER-2) breast cancer: The MONALEESA clinical trials program. Pierfranco Conte, IT

PO82 A phase II study of metronomic daily oral vinorelbine as first-line chemotherapy in advanced/metastatic hormone receptor positive HR+/human epidermal growth factor receptor 2 negative (HER2-) breast cancer resistant to endocrine therapy - vinometro. Christoph Thomssen, DE

PO83 Prognostic factors in metastatic breast cancer patients to brain: Retrospective analysis brain: Retrospective analysis. Ahmed Gaballah, EG

PO84 Nab-paclitaxel (Nab-P) in HER2-ve advanced breast cancer (ABC) patients (pts): Focus on luminal cancers. Results from GIM13-AMBRA study. Marina Elena Cazzaniga, IT
PO85 Capecitabine and vinorelbine combination more effective as the first line treatment of advanced ER positive breast cancer. Loay Kassem, EG
PO86 Efficacy and toxicity of eribulin in real-life non-selected advanced breast cancer patients. Anne Sofie Brems-Eskildsen, DK
PO87 All oral combination of vinorelbine and capecitabile as a first line treatment in patients (pts) with metastatic breast cancer (MBC). Samir Shehata, EG
PO88 Efficacy of capecitabile monotherapy as treatment for real life patients with HER2-negative mestastatic breast cancer. Anne Sofie Brems-Eskildsen, DK
PO90 Efficacy and safety of eribulin in combination with trastuzimab in HER2-positive metastatic breast cancer patients: Real life experience. Elena Kovalenko, RU
PO91 Relapse and metastatic spread patterns in patients with HER2/neu positive breast cancer who underwent targeted therapy. Ekaterine Arkania, GE
PO92 Evaluation of pertuzumab treatment for metastatic breast cancer in a retrospective single institution study. Mitsugu Yamamoto, JP
PO93 Leptomeningeal metastases from breast cancer - are we overtreatening? decision algorithms and assuring breast care. Ana Leonor Matos, PT
PO94 Treatment of advanced breast cancer with T-DM1 in a cancer center. Filipa Ferreira Pereira, PT
PO95 Patterns of response to therapy in ER/PR positive metastatic breast cancer. Marie Sundquist, SE
PO96 Advanced breast cancer in young women: Outcome of a Portuguese hospital. David da Silva Dias, PT
PO100 Gastrointestinal and other selected adverse effects of cyclin-dependent kinase 4 and 6 inhibitors in breast cancer patients: A systematic review and meta-analysis. Kyrillus Shohdy, EG
PO112 Breast cancer liver metastases - when to operate. Vítor Devezas, PT
PO113 GISEL study group proposal: A phase II randomized clinical trial in breast cancer patients with skin metastases treated with or without electrochemotherapy (ECT) during the first line of treatment. Roberto Agresti, IT
PO114 Metastatic breast cancer patients who achieved clinical complete response after multidisciplinary therapy: Clinical features from a single institution. Haruko Takuwa, JP
PO115 A novel and innovative "non-tunneling" technique of port insertion for chemotherapy infusion in advance breast cancer patients: A single center study in 130 patients. Abhinav Deshpande, IN
PO117 Electrochemoterapy (ECT) treatment in-patient with bone foot metastasis from breast: A case report. Daniele Screpis, IT
PO118 Five years overall survival of locally advanced triple-negative breast cancer in west Sumatera, Indonesia. Daan Khambri, IN
PO121 A retrospective cohort study to investigate association between preferences for future care and period of final chemotherapy administration before end-of-life. Sena Yamamoto, JP
PO122 Advanced stage breast cancer lifestyle and exercise (ABLE) feasibility study: Preliminary results. Lidia Delrieu, FR
PO123 Leaving a legacy: Half day retreat for young women living with metastatic breast cancer. Mary Ajango, US
PO125 The information and support needs of women with metastatic breast cancer who have dependant aged children: A study to inform service development to support women talk with and prepare their children. Maria Leadbeater, UK
PO126 Quality of life and psychosocial need of metastatic breast cancer patients. Tahir Mehmood, PK
PO127 Palliative care in Egypt: Challenges and opportunities. Mohamed Hablas, EG
PO128 G-CSF and G-CSF biosimilars: A meta-analysis of randomized clinical trials in breast cancer patients undergoing myelosuppressive chemotherapy. Giuseppe Curigliano, IT
PO129 Musculoskeletal pain and health-related quality of life among breast cancer patients: Evidence from south India. Asmin Sha, IN
PO130 Utilization of integrative supportive services in a specialized advanced breast cancer center. Timothy J. Pluard, US
PO131 Predictive factors for persistent pain in patients with advanced breast cancer receiving adjuvant therapy. Teodora Alexa-Stratulat, RO
PO132 Evaluation of health-related quality of life via the computer-based health evaluation system (CHES) for Japanese metastatic breast cancer patients: A single-center pilot study. Yuichiro Kikawa, JP
PO133 Exploring support networks and quality of life of metastatic breast cancer patient in Nigeria and Turkey. Runcie Chikeruba Wilson Chidebe, NG
PO134 Homestatic correlations in patients with breast and ovarian cancer. Elina Beleva, BG
PO136 First-line treatment modality for metastatic breast cancer: A single-institution outcome analysis by metastatic site and molecular type. Russell Burcombe, UK
PO137 Presentation and specific risk factors of inflammatory breast cancer (IBC): A multicenter Tunisian study. Nesrine Mejri Turki, TU
PO138 Preference of treatment decision-making in women with advanced breast cancer. Chikako Shimizu, JP
PO139 An investigation into the psycho-social benefits of women attending UK charity breast cancer care's "living with secondary breast cancer" service: A group based psycho-educational intervention. Catherine Priestley, UK
PO140 Rise of metastatic breast cancer incidence in Lebanon: Effect of refugees and displaced people from Syria, and patients from war-torn Iraq. Nagi S. El Saghir, LB
PO141 Adjuvant therapies for breast cancer improve cure rates but appear to shorten post-metastatic survival. Nadia Harbeck, DE
PO142 Advanced breast cancer prevalence and related personal factors. Nanuli Ninashvili, GE
PO143 Inflammatory breast cancer: A single center experience from developing country. Pooja Khullar, IN
PO144 Clinicopathological characteristics, prognosis and issues in young women (<40 years old) with recurrent or metastatic breast cancer. Kaori Ushimado, JP
PO145 Harvesting population data to aid treatment decisions in heavily pre-treated advanced breast cancer. Sharon Hensley Alford, US

The Breast 36 S1 (2017) S19–S76

Contents lists available at ScienceDirect

The Breast

journal homepage: www.elsevier.com/brst

Invited Abstracts

IN01

SILENT VOICES SPEAK: AN ADVOCATE'S JOURNEY

Musa Mayer
Metastatic Breast Cancer Alliance, New York, USA

In 25 years of advocacy for people living with metastatic breast cancer and their families, three major themes emerge: Voice, evidence and access. In the early 1990s, few resources existed for this forgotten population. While deaths from breast cancer were acknowledged, little attention was paid to those actually living with the fatal form of the disease. Before the Internet made it possible for these women to find one another, peer support was nonexistent. Women whose cancer recurred were often excluded from in-person support groups, and pink ribbons served only to celebrate survivorship. Yet early patient surveys were beginning to document widespread unfulfilled needs. In the US, the desperation for effective treatment led to the tragic wide-spread adoption of high-dose chemotherapy with bone marrow or stem cell transplant. Many women died from this unproven, highly toxic approach that ultimately was shown to offer no benefit over standard chemotherapy. Hard but necessary lessons were learned about the need for high-quality evidence of efficacy and safety. Since that time, new treatments and improved supportive care have led to modest increases in survival and quality of life, but broad access to optimal care remains elusive for many if not most metastatic breast cancer patients, and disparities in outcome become ever more apparent as treatment improves. But there are some hopeful signs. An increasing number of women living with ABC are now advocating for themselves. The ABC Consensus Conferences and other coordinated efforts have come from the medical and research community. Advocacy and support organizations have banded together to form the Metastatic Breast Cancer Alliance, and a Global Alliance is currently under formation.

IN03

MANAGEMENT ISSUES: HOW AND UNTIL WHEN TO TREAT?

Christoph Thomssen
Martin-Luther-University Halle-Wittenberg, Department of Gynaecology, Halle an der Saale, Germany

Although not curable, metastatic breast cancer can effectively be treated even for long time intervals. Thus, in clinical routine it is an open question, whether after reaching remission or at least stable disease, treatment should be interrupted with the intent to improve quality of life, or should be continued hoping for longer duration of response. Actually, there is no real doubt, that treatment with few side effects or those that are rather downregulating the tumor cell activity than destroying tumor cells should be continued until progression of disease. That includes endocrine drugs, some targeted drugs like anti-HER2 drugs, and inhibitors mTOR, CDK4/6, and angiogenesis, and bone modifying agents (bisphosphonates, denosumab). With regard to chemotherapy, it has been shown that patients may benefit from interrupting therapy after disease stabilization and reintroduce it at the time of progression. However, a recent meta-analysis demonstrated that continuation of therapy until progression might be beneficial with regard to prolonged overall survival compared to shorter treatment [2]. Such an approach might particularly be feasible if single agent regimen with low toxicity are delivered including weekly schedules of e.g. paclitaxel, epirubicin, or vinorelbine as well as orally administered compounds like e.g. capecitabine. Traditional treatment models were challenged by data that showed overall survival benefit by a non-crossreacting maintenance therapy (capecitabine plus bevacizumab) after disease stabilization by 3 to 6 courses of an induction treatment (docetaxel plus bevacizumab). A special question arises with patients who are in long-lasting complete remission under anti-HER2 therapy. Stopping anti-HER2 therapy after several years of sustained complete remission is an option, but due to lack of data, most oncologists would probably not discontinue anti-HER2 treatment.
In order to develop a general rule for adapting particular therapy strategies to the individual clinical situation, the term of therapeutic index was introduced [1,3]. Therapeutic index describes a ratio of overall efficacy, toxicity and impact on quality of life. Current guidelines recommend delivery of cytotoxic therapies as long as the therapeutic index is positive. Thus, treatment should be continued until disease progression or until non-tolerable toxicity occurs. Stopping therapy at best response is not recommended neither switching to an alternative regimen before progression. Always, patient preferences and quality of life issues should be included into the decision.

References

[1] Cardoso F *et al.* 3rd ESO-ESMO international consensus guidelines for Advanced Breast Cancer (ABC 3). *Breast*. 2017 Feb; 31:244–59.
[2] Gennari A *et al.* Duration of chemotherapy for metastatic breast cancer: A systemic review and meta-analysis of randomized clinical trials. *J Clin Oncol.* 2011; 29:2144–9.
[3] Thill M *et al.* AGO Recommendations for the Diagnosis and Treatment of Patients with Advanced and Metastatic Breast Cancer: Update 2016. *Breast Care (Basel)*. 2016 Jun; 11(3):216–22.

IN04

IS FAMILY PLANNING (FERTILITY, ADOPTION) OUT OF THE QUESTION?

Shani Paluch-Shimon
Breast Cancer Service for Young Women, Division of Oncology, Sheba Medical Centre, Ramat Gan, Israel

For young women diagnosed with advanced breast cancer (ABC) one of the most devastating consequences of their diagnosis and treatment is the dramatic impact on family planning, fertility and the high likelihood that they will most likely never conceive or

carry a healthy pregnancy. Traditionally, most oncologists have not discussed family planning or fertility preservation with young women with newly diagnosed ABC, with the view that ABC is an incurable and invariably fatal disease, that a pregnancy would hinder treatment and that fertility preservation could delay commencement of treatment.
However, today, in the advent of targeted therapies and patients that are 'super-responders', as some women are living longer with the disease and in an era of a growing choice of fertility preservation techniques, that can often be performed in a short time frame, the issue of how family planning needs should be addressed and discussed with patients requires careful thought and attention. This is a topic for which almost no professional literature is available.
Family planning options also extend beyond fertility preservation and pregnancy – they also include surrogacy and adoption. Family planning in the context of a chronic and terminal disease is fraught with medical, legal and ethical challenges and these issues may vary from country-to-country with respect to legislation and religious-cultural beliefs.
The lecture will aim to outline and address some of the key issues and challenges encompassing family planning in ABC and will aim to encourage dialogue and raise awareness amongst health care professionals caring for young women with ABC.

IN05

INSURANCE POLICIES AND PROFESSIONAL CAREER AFTER AN ADVANCED BREAST CANCER DIAGNOSIS

Elizabeth Bergsten Nordström
Swedish Breast Cancer Association, Stockholm, Sweden

When having a life-threatening diagnosis, a patient focuses on the medical side of the situation – at first. Access to private insurance and to employment can be difficult depending on the life situation. The insurance system is based on risk assessment that generally, after a cancer diagnosis and especially after an ABC-diagnosis, makes access difficult due to the cost. The legal systems are different in each country, depending on political agendas and social security systems. A summarized glimpse of the situation will be given.

IN06

OPTIMAL SEQUENCE WITH AND WITHOUT THERAPIES FOR ABC

Ian E. Krop
Harvard Medical School, Dana-Farber Cancer Institute, Boston, USA

The introduction of therapies directed against distinct molecular targets in breast cancer has greatly improved patient outcomes. This improvement is most dramatic in the treatment of HER2-postive breast cancer. Amplification of the HER2/neu gene occurs in approximately 20% of invasive breast cancers and is associated with aggressive clinical behavior. The development of HER2-targeted therapies, including trastuzumab, lapatinib, pertuzumab and trastuzumab emtansine (T-DM1) has improved survival in patients with both early and late stage HER2-positive cancers. Given these improvements, the goals in treating patients with advanced HER2-positive breast cancer are to both extend survival as well as to minimize toxicities of therapy. The optimal sequencing of the available HER2-targeted therapies in order to maximize survival and quality of life is evolving.
In patients with newly diagnosed metastatic breast cancer, pertuzumab, in combination with trastuzumab and docetaxel, markedly improves survival and only modestly increases toxicity compared to trastuzumab and docetaxel. Pertuzumab, trastuzumab, and a taxane should thus be considered the standard of care for the majority of patients in the first line setting. For those patients with hormone receptor positive HER2-positive cancers, the combination of pertuzumab, trastuzumab, and aromatase inhibitor is associated with prolonged PFS and represents a chemotherapy-free approach that may be appropriate for select patients.
In the second line setting, the antibody-drug conjugate T-DM1 is the standard of care as it is associated with longer survival and less toxicity than capecitabine and lapatinib. In 3rd and later lines of therapy, continuation of HER2-directed therapy is important, but there are no definitive data that a particular regimen (e.g. trastuzumab + chemotherapy, lapatinib + chemotherapy, trastuzumab + lapatinib) is superior in this setting. Thus, decisions regarding choice of therapy should be guided by patients' preferences regarding toxicity profiles and route of administration. Unfortunately, despite the effectiveness of HER2-targeted therapy, these agents are not available in all countries and even where available, the high cost of these therapies keeps them out of reach for some patients. In that situation, using whichever HER2-therapy is available (e.g. trastuzumab or lapatinib), in combination with conventional therapy (chemotherapy or endocrine) is preferable. The introduction of biosimilar trastuzumab may help increase the availability of HER2-targeted therapy to a larger population of patients in need.

IN07

HER2 RESISTANCE FACTORS: IMPLICATIONS IN HER2 POSITIVE ABC

Karen Gelmon
BC Cancer Agency, Medical Oncology Department, Vancouver, Canada, University of British Columbia, Medical Oncology Department, Vancouver, Canada

Although we have a number of effective treatments in HER2 positive ABC the majority of patients progress on treatment. There have been numerous studies trying to define the mechanisms of resistance to treatment. One of the major issues with HER2 ABC is clonal evolution and tumor heterogeneity [1,2]. Studies have shown that this phenomenon is variable in incidence but does present a treatment dilemma and is responsible for some treatment failure. Regional heterogeneity of HER2 was reported as an independent poor predictor of outcome in HER2 positive ABC [3]. Studies in the neoadjuvant have also shown that post treatment biopsies are often lacking in HER2 expression after treatment where there is significant residual disease. This tumor heterogeneity of HER2 expression may be responsible for a significant number of relapses and confirms the need for careful biopsies of recurrent disease or of sites that are showing a discordant response. The role of liquid biopsies in this setting is being studied. As well, very selective targeted drugs may show lower efficacy in situations where there may be multiple populations of cells in the advanced setting. There have been numerous studies looking at other factors including changes in the HER2 receptor such as truncation which led to studies comparing response to trastuzumab versus TKIs. Downstream pathways have also been implicated in resistance and include PIK3CA mutations, PTEN loss, Srd activation and CDK dysregulation. The PIK3CA mutation story has been shown to affect response in the neoadjuvant setting. The CDK dysregulation has led to studies of targeting CDK 4/6 in conjunction with antiHER2 therapies to overcome this factor. There are a number of alternate pathways that may be activated and impact response including c-MET and IGF1-R activation. Tumors that are estrogen receptor

positive seem to be less responsive sometimes to antiHER2 therapy that may be a type of resistance. Finally, immunological factors, which have been described since 2000 [4]. Since those initial reports, other studies have shown the importance of immune factors such as TILs in response and resistance [5,6]. Indeed some of the long overall survival results shown with antibody treatment may be due to the continued activation of the immune system in some patients and this may explain in impressive OS durations that are seen and that are longer than PFS in some studies such as Cleopatra. Pharmacogenomic factors have been looked at with Fc-g receptor polymorphisms but studies have not been consistent when looking at this factor. Multiple factors may be at play in some situations so studying the tumor and the host factors are going to be important in sorting this out and in designing trials to overcome resistance. With new treatments, we may eradicate some of these clones and improve outcomes.

References

[1] Wolff A.C., *et al. J Clin Oncol*, 2007
[2] Viale *et al. Modern Pathology* 2013
[3] Seol *et al. Am J Clin Pathol* 2014; 142: 755
[4] Clynes *et al.* 2000
[5] Stagg *et al.* 2011
[6] Loi *et al.* 2014

IN08

OPTIMIZING ANTI-HER-2 THERAPIES FOR ABC POTENTIAL ROLE OF IMMUNOTHERAPY

Javier Cortés
Ramon y Cajal University Hospital, Madrid & Vall d'Hebron Institute of Oncology (VHIO), Barcelona, Spain

Although the prognosis of both HER2-positive early and metastatic breast cancer has changed dramatically with the introduction of antiHER2 therapies, many patients still relapse and will ultimately die as a consequence of their disease. Thus, new and better drugs are needed. In addition to new direct antiHER2 therapies, including new tyrosine kinase inhibitors and new antibody-drug conjugates, other drugs will probably play a role in this setting, such as cyclin D kinase inhibitors or the PI3k/AKT/mTOR signaling pathways inhibitors.

However, over the last years, a more in-depth knowledge about immune-oncology in solid tumors in general and in breast cancer in particular, has awaken a tremendous interest in the medical community. Research focused on stroma tissue and host cells that are infiltrating the tumor is getting more and more interest. At the microenvironment level, the presence of tumor-infiltrating lymphocytes (TILs) shows high variability across patients. Indeed, high levels of TILs have been associated with better survival outcome both in the early and metastatic setting. Thus, the immune system is known to play a key role in high grade breast tumors, including triple negative and HER2-positive breast cancers.

Different treatments commonly employed for the treatment of breast cancer, such as chemotherapy and radiotherapy, affect the tumor immune infiltrate, basically affecting T cell-dependent tumor-specific immune responses. Moreover, one of the most important mechanisms of action of trastuzumab involves the innate and adaptive immune system. Besides trastuzumab, other immune-based therapies that are being studied in HER2-positive breast cancer, include margetuximab or the anti PD1/PD-L1 monoclonal antibodies.

Margetuximab is a new chimeric monoclonal antibody derived from 4D5, the parent antibody of trastuzumab. Although both margetuximab and trastuzumab bind the same epitope of HER2 with similar high affinity, five amino acids substitutions were engineered into de IgG1 Fc domain of margetuximab, yielding substantially increased binding to both alleles of human CD16A and substantially reduced binding to CD32B, an inhibitory FcγR. This optimized Fc domain confers enhanced antibody-dependent cell cytotoxicity against HER2-positive tumor cells, including cells resistant to trastuzumab's anti-proliferative activity. In a phase I trial, margetuximab has shown to be active in trastuzumab-pretreated patients. Margetuximab is now being explored in a randomized phase-3 trial in HER-2 positive metastatic breast cancer.

Pembrolizumab, a high-affinity, highly selective, humanized monoclonal antibody against PD-1, approved in several countries for the treatment of different advanced malignancies and atezolizumab, a PD-L1 inhibitor, are being explored in HER2-positive advanced breast cancer. Although not data have been reported yet on this patient population, the results of the first studies are eagerly awaited and it is expected that these agents will have an important role in the treatment of these tumors.

IN09

WILL BIOSIMILARS BECOME STANDARD?

Smruti Koppikar
Bombay Hospital Institute of Medical Sciences, Lilavati Hospital, Asian Cancer Institute, Bombay, India

HER2 directed therapies have transformed the treatment of HER2 positive breast cancer improving the outcomes in all settings [1,2]. The access to these lifesaving biologics is a challenge worldwide as demonstrated by several studies [3,4]. The recent expiration of patent for trastuzumab in some countries and the regulatory guidelines issued by the European Medicines Agency (EMA), United States (US) Food and Drug Administration and the WHO have paved the way for several trastuzumab biosimilars being developed [5,6,7]. Trastuzumab biosimilar by definition is a complex biological product highly similar but not identical to the originator, with no clinically relevant differences.

The establishment of biosimilarity between the proposed biosimilar and the originator requires stringent analytical, functional (with short term measures of activity), safety and immunogenicity assessment [5,6]. The regulatory pathway for the biosimilar is different from that of the originator. The pruned developmental programme facilitates substantial cost saving without compromise in quality and efficacy. Several Trastuzumab biosimilars are in the developmental phase. Preliminary results [8] have shown ABP-980 to have non-inferior efficacy to the originator with similar safety and immunogenicity. Published data [9] have led to the application for marketing authorization for Myl-14010 to the EMA and US FDA. Biosimilar trastuzumab is in use in several countries (including India). The benefits in terms of access and savings for the healthcare system offers the potential for biosimilars to become standard in future.

References

[1] Harris CA *et al. Ann Oncoll* 2011: 22: 1308–17
[2] Kawalec P *et al. Clin Breast Cancer* 2015: 15: 90-100.e 1
[3] Stenehjem DD *et al. Breast Cancer (Dove Med Press)* 2014: 6: 169–77
[4] Gandhi S *et al. Cancer Res*: 2010: 70: Abstr nr P1-10-05
[5] Committee for Medicinal Products for Human Use (CHMP), Guidelines on similar biologic medicinal products, London, England: European Medicines Agency (EMA): 2014
[6] US Food and Drug Administration. Scientific considerations in demonstrating biosimilarity to a reference product guidance for industry. Silver Spring Maryland: US Department of Health and Human Services. Food and Drug Administration Centre for Drug Evaluation and Research (CDER), Centre for Biologics Evaluation and Research (CBER): 2015

[7] World Health Organisation Expert Committee on Biological Standardization: Guidelines on evaluation of similar biotherapeutic products (SBPs) Geneva, Switzerland World Health Organisation 2009
[8] Amgen and Allergan announce topline results from phase 3 study evaluating ABP 980 compared with Trastuzumab in patents with Human Epidermal Growth Factor Receptor 2 positive early breast cancer news release. *Thousand Oaks, California Dublin, Ireland PRNewswire 2016*
[9] Rugo HS *et al. JAMA* 2017: 317: 37–47

IN10

LUMINAL METASTATIC BREAST CANCER: BEST SEQUENCE OF AVAILABLE THERAPIES

Nadia Harbeck, Rachel Wuerstlein
Breast Center, University of Munich (LMU), Germany

National and international guidelines (e.g. ABC, AGO, ASCO, ESMO) recommend endocrine-based therapy as the first therapeutic choice in hormone-receptor (HR) positive, HER2-negative ABC unless visceral crisis or another life-threatening situation requires chemotherapy. There are several endocrine agents available for ABC which can be given sequentially, depending on prior therapies and response duration. In addition to agents used in EBC such as aromatase inhibitors (AI) or tamoxifen, fulvestrant is an approved option for ABC. In premenopausal patients, ovarian suppression is recommended not just with AI but also with tamoxifen and fulvestrant. In the phase III FALCON trial, fulvestrant$_{500}$ was superior to anastrozole with regard to PFS in endocrine-naïve patients without but not in those with visceral involvement.
Recent studies have shown that progression-free survival (PFS) can be substantially prolonged by adding a targeted agent such as the mTOR inhibitor everolimus or a CDK4/6 inhibitor (CDK4/6i) to endocrine therapy. Unfortunately, there is no biomarker or clinical feature that predict particular benefit from these targeted agents.
In 1st line therapy, CDK4/6i palbociclib (PALOMA 2) and ribociclib (MONALEESA 2) together with letrozole substantially improve PFS compared to AI alone. Palbociclib is approved in US and Europe, while the European registration for ribociclib is expected for 2017.
In endocrine pretreteated patients, palbociclib together with fulvestrant (PALOMA 3) and everolimus together with exemestane (BOLERO 2) both improve PFS with a clinically meaningful difference vs. endocrine therapy alone. From PALOMA 3, we know that premenopausal patients do derive the same benefit from CDK 4/6i plus fulvestrant (together with GnRH) as postmenopausal patients.
Toxicity with CD 4/6 inhibition is mostly hematological with neutropenia being the dose-determining toxicity. Patients need frequent blood counts during the first 2 cycles and afterwards at the start of every new cycle. Febrile neutropenia, however, is a very rare event. Everolimus demands proactive side effect management with stomatitis and being frequent early and hyperglycemia and non-infectious pneumonitis late side effects.
Phase III results for a third CDK 4/6i, abemaciclib, and for alpha-specific PI3K inhibitors are expected within the near future.
Given the substantial PFS advantage and the good quality of life with CD 4/6i, these agents are a new first-line standard whereas exemestane and everolimus will be used after endocrine-based pretreatment since substantial toxicity does impact QoL. So far, no overall survival has been demonstrated for addition of a targeted agent to endocrine therapy. Thus, a sequence of endocrine therapies alone is also a valid option, particularly in patients with good response to prior endocrine therapies, low tumor burden, and slow disease progression. Thus, availability of the new targeted agents, patient preferences, and tumor characteristics will be determining factors for sequencing of endocrine-based therapies in luminal ABC.

IN11

THE NEW MANAGEMENT OF LUMINAL ABC: MANAGEMENT OF NEW SIDE EFFECTS

Carlos H. Barrios
PUCRS School of Medicine, Porto Alegre, Brazil

After many decades without significant changes in the available therapeutic alternatives for advanced Luminal Breast Cancer patients we are witnessing the introduction of a number of new agents many of which already approved by regulatory agencies. The common theme behind these new developments is the recognition of the different pathway interactions involved in resistance to standard HR blockade. Modulation of resistance in association to standard ET has led to significant improvements in PFS but at the same time to new and special side effects that represent a particular challenge for the breast cancer clinician.
The initial results of mTOR inhibition in combination with exemestane in previously treated patients was associated with a particular set of toxicities such as stomatitis, skin rash, pneumonitis and hyperglicemia not commonly seen with standard ET. Even though preventive strategies have demonstrated significant improvements in the incidence of stomatitis, particular attention to early diagnosis of these adverse events is essential to optimaly manage these situations.
More recently, the introduction of CDK 4/6 inhibitors in combination with AIs resulted in impressive early benefits in HR+ ABC both in first line and in previously treated patients. Notably, high rates of neutropenia have been associated with palbociclib, ribociclib and to a lesser extent with abemaciclib as well. The mechanism and the recovery times of the myelossupression related to CDK 4/6 inhibition is different from the one resulting from chemotherapy and even though profound in a significant proportion of patients has not been associated with episodes of febrile neutropenia. Close monitoring of blood counts, something we routinely are not used to do with standard ET, is mandatory to allow for the adequate management of these patients. The widespread use of these agents in clinical practice, outside the strict monitoring of a clinical trial represents a particular challenge and real-world data will be important to confirm these findings.
Unquestionably, when compared with single agent previously available conventional ET, the introduction of these endocrine resistance modulators results in some compromise in QoL, even though measurements in clinical trials may not necessarily reflect their real impact. At the same time, we need to recognize the small but measurable rate of treatment discontinuations we are not used to see with standard ET. Furthermore, most of the reported trials have relatively short follow up times and not one of them so far has shown survival benefits, which arguably, will be very difficult to demonstrate. Longer follow up is certainly required to demonstrate the long-term safety of these agents, not a minor point as we embark in large, already ongoing adjuvant trials.
Optimal management of these 'new' side effects requires education of the clinician and the medical team that will need to change their routine and dedicate more time to explain and follow the patients receiving these new therapies. Patient and family education are also important aspects, crucial to allow close communication and early diagnosis to optimize the benefits of these new therapies.

IN12

MECHANISMS OF RESISTANCE TO ENDOCRINE AND BIOLOGICAL AGENTS

Stephen R.D. Johnston
Breast, Lung and Medical Oncology Services CBU, The Royal Marsden NHS Foundation Trust and The Institute of Cancer Research, London, UK

Endocrine therapy is the primary treatment approach for patients with estrogen receptor positive (ER+) metastatic breast cancer (MBC). However, the disease in some patients demonstrates de-novo 'primary' resistance to hormonal treatments and can progress quickly, while in all patients who initially respond to endocrine therapy the disease will eventually progress showing acquired 'secondary' resistance. Pre-clinical and translational studies have attempted to identify common mechanisms for endocrine resistance, and thus potential therapeutic approaches to reverse/prevent resistance. Growth factor receptor inhibitors and agents that target various signal transduction pathways have all been investigated with varying levels of success. To date the only approach that has been effective in combination with endocrine therapy is to co-target the cell cycle by the addition of a cyclin-dependent kinase (CDK) 4/6 inhibitor. Palbociclib is an orally bioavailable small-molecule inhibitor of cyclin-dependent kinases 4 and 6, that is highly active against luminal breast cancer cell lines and is synergistic with endocrine therapies. The reported results from the phase III study (PALOMA-2) in the first-line setting demonstrated a significant improvement in PFS with Palbociclib plus Letrozole, and similar data have been reported for the oral CDK 4/6 inhibitor ribociclib in a phase III study (MONALEESA-2). In both phase III trials, subgroup analysis showed that benefit was seen in all groups of patients; biomarkers that may predict benefit were assessed in PALOMA-2 by both qualitative and quantitative means in the primary tumour including expression of ER, the retinoblastoma (Rb) protein which regulates CDK activation, Ki67 as an indicator of cell proliferation, and Cyclin D1/p16 expression as indicators of an activated cell cycle – none were found to be of predictive value. Given the challenges of finding biological predictors in the metastatic setting, studies are ongoing in the neo-adjuvant setting before & during drug exposure to assess biological response to therapy (PALLET). Attention in ER+ MBC is focusing on the issue of treatment of Palbociclib resistance, although there is no clinical answer yet to the most effective therapy at progression on Palbociclib. Recent laboratory studies from suggest retention of ER in Palbociclib-resistant ER+ cell lines with network re-wiring to utilize different cell cycle dependent kinases (CDK 2, Cyclin E), with evidence for subsequent response to SERDs (Fulvestrant), PI3K/mTOR inhibitors, and also partial non-cross resistance with alternative CDK 4/6 inhibitors such as abemaciclib. Ongoing clinical trials will help define the optimal sequence of options to be used following first-line CDK 4/6 therapies in the ER+ MBC setting.

IN13

METRONOMIC CHEMOTHERAPY: A GOOD OLD FRIEND

Nagi S. El Saghir
Breast Center of Excellence, NK Basile Cancer Institute, Department of Internal Medicine, American University of Beirut Medical Center, Beirut, Lebanon

The administration of chemotherapy in doses lower than the Maximum Tolerated Dose MTD determined in clinical studies, on continuous steady basis, is called metronomic chemotherapy. Metronomic chemotherapy administration is believed to act on the malignant cells as well as on the microenvironment component of tumors. Action on the microenvironment includes antiangiogenic effects and immunomodulation. Effectiveness of Metronomic Chemotherapy has been demonstrated in many small clinical trials as well as in meta-analysis, recommended for use in hormone receptor-positive HER2-negative metastatic breast cancer and included in several guidelines including AGO German Guidelines. In this presentation, we will discuss rationale, mechanisms of action, results of published available phase II and phase III clinical trials, indications, and need for further clinical investigation and need for well-designed Randomized Clinical Trials. Oral metronomic chemotherapy mainly involves the use of cyclophosphamide, low dose methotrexate, capecitabine and vinorelbine. It can also involve using intravenous chemotherapy at low doses with more frequent administration than the 3-weekly or 2-weekly commonly used regimens. Response rates and PFS rates may be equivalent to standard chemotherapy but with less toxicity. However, significant hematological toxicity may occur in heavily pre-treated patients. Metronomic chemotherapy can be used as a regular line of treatment but also as maintenance therapy after an initial response to a standard chemotherapy regimen. We will also discuss use in older patients.

IN14

MAINTENANCE THERAPY (CHEMOTHERAPY, ENDOCRINE THERAPY, BIOLOGICS)

Prudence A. Francis
Peter MacCallum Cancer Centre, Division of Cancer Medicine, Melbourne, Australia

Maintenance systemic therapy is administered to patients with responding or stable metastatic breast cancer with several goals:

i. prolonging disease control/increasing progression-free survival (PFS)
ii. maintaining/maximizing quality of life (QoL) by delaying symptoms of progressive disease
iii. delaying subsequent systemic therapy that may be more toxic
iv. improving overall survival (OS).

The alternative to a maintenance therapy strategy is a break from systemic therapy combined with careful disease monitoring and initiation of further therapy at disease progression. Good judgement is required to balance the clinical and social toxicity of the maintenance therapy and patient preferences with the potential benefits.
Previous ABC Consensus Guidelines include statements relating to maintenance therapy:

1. ER+ve/HER2-ve MBC: Endocrine treatment after CT (maintenance ET) to maintain benefit is a reasonable option, though it has not been assessed in randomized trials (LoE: 1 C) [1].
2. ER+ve/HER2+ve MBC: For patients for whom CT + anti-HER2 therapy was chosen as 1st line therapy and provided a benefit, it is reasonable to use ET + anti-HER2 therapy as maintenance therapy, after stopping CT, although this strategy has not been studied in randomized trials. (LoE: 1 C) [2].
3. HER2+ve MBC: In patients achieving a complete remission, the optimal duration of maintenance anti-HER2 therapy is unknown and needs to be balanced against treatment toxicity, logistical burden and cost. Stopping anti-HER2 therapy, after several years of sustained complete remission, may be considered in some patients, particularly if treatment re-challenge is available in case of progression. (LoE: Expert Opinion) [2].
4. Chemotherapy and Biological Therapy: Duration of each regimen and number of regimens should be tailored to each individual patient. (LoE: Expert Opinion). Usually each regimen should be given until progression of disease or

unacceptable toxicity (unacceptable should be defined together with the patient) (LoE:1B) [1].

A meta-analysis found that longer (i.e. maintenance) first-line chemotherapy (CT) duration was associated with a substantially longer PFS and a clinically modest but statistically significant improvement in overall survival [3]. In one randomized trial that addressed continuous versus intermittent first-line chemotherapy in conjunction with QoL, the continuous chemotherapy strategy was associated with better QoL [4].

Maintenance therapy may involve single agents or combinations, with options including endocrine therapies, HER2 targeted therapies, cytotoxic agents and biologic therapies. Optimal agents have a low cumulative toxicity. Investigational approaches testing approaches that include biologic agents or immunotherapy may result in new evidence-based approaches for maintenance therapy in future.

References

[1] Cardoso F. *et al. The Breast* 2012; 21: 242–252.
[2] Cardoso F. *et al. Ann Oncol* 2017; 28: 16–33.
[3] Gennari A. *et al. J Clin Oncol* 2011; 29: 2144–2149
[4] Coates A. *et al. New Engl J Med* 1987: 317: 1490–1495

IN15

ORAL DRUGS: CHALLENGES FOR THE ONCOLOGY NURSE

C.B. Boers-Doets[1]
[1]*CB Boers ORG, Wormer, NL and The Netherlands Leiden University Medical Center, Leiden NL*

Oral drugs – they seemed so easy in use. Actually, despite their advantages, they can be pretty challenging.

The benefits are that patients do not need to travel so often to their clinic and spend so much time there – so more freedom.

This treatment option has disadvantages too. Patients need to know much more about their treatment than with IV treatment. They need to understand when to take their drugs and how much of the drugs. They need to know if there is interaction with food, drinks, supplements and other drugs. They need to be instructed in what to do when they missed a dose or took too much. They need to understand what consequences treatment delays and dose adjustments have. They are remembered about their cancer more often because oral treatments are taken more often than iv treatments are provided. Another difficult part is the partnership with the healthcare professionals. When does a patient need to contact them? How to act when they didn't do what they were supposed to do?

Oral drugs are quite challenging for all involved parties. Without an interdisciplinary approach oral treatment will not be as effective as it can be.

Best results can be achieved when all parties work together, support each other, say the same, explain the same, react the same. In this mini training, I will guide you through the options to consider so both parties will benefit.

IN16

SYSTEMIC TREATMENT OF METASTATIC BREAST CANCER (MBC) IN OLDER ADULTS

Laura Biganzoli, Julianne Lima, Erica Moretti, Emanuela Risi, Marta Pestrin, Amelia McCartney
Istituto Toscano Tumori, Prato Hospital, Medical Oncology Department, Prato, Italy

The goal of care in patients with MBC is to optimize the length and quality of life. Treatment decision is based both on patient and tumor characteristics. As the treatment benefit is seen regardless of age group, age alone is not sufficient to determine the type and intensity of treatment. However, it should be kept in mind that age-related physiological changes are expected to affect various organs and functions. Such changes can subsequently affect certain pharmacokinetic and pharmacodynamics of numerous anticancer drugs, and reduce the ability of organs/systems to withstand the negative effects of drugs. Several age-related factors can influence the management plan in older adults with MBC. Comorbidities can affect treatment tolerability and therefore influence eventual regimen choice and, concurrent medications can have important interactions. Furthermore, cognitive and psychological status can impact strategy understanding and consent, adherence to complex treatment regimens and toxicities management. Nutrition and physical function can influence treatment tolerance and prognosis, and socio-economic factors can also influence adherence to treatment. Hence, older patients warrant explicit monitoring and proactive management of treatment toxicities, which could well match cautious dose escalation strategy especially for vulnerable or frail ones. Despite recent advances in the systemic treatment of ABC, management of older patients is still challenging, given the difficulty of generalizing available treatment regimens to this complex patient group, due mostly to under-representation in many pivotal clinical trials, variable aging trajectory, and lack of data on managing less fit or frail patients.

IN17

THE BIOLOGY OF INFLAMMATORY BREAST CANCER

Frédérique Penault-Llorca
Centre Jean Perrin, Department de Pathology, Clermont Ferrand, France

Inflammatory breast cancer (IBC) is a rare and aggressive phenotype of breast cancer encompassing approximately 3% of newly diagnosed breast tumors. IBC tends to affect younger women when compared to locally advanced non-IBC with a median age at diagnosis of 57 years. There are considerable geographic/racial disparities. IBC frequency varies between 1% (Western Europe) to 10% (North Africa) and as the highest incidence in African-American women and lowest in Asians and Pacific Islanders. IBC has no histological diagnostic criteria and its diagnosis is based primarily on its clinical presentation. In the TNM classification, IBC is classified as T4d.

For IBC, although gene expression profiling studies have shown the presence of the same classes of the intrinsic classification of non-IBC, differences do exist in several key pathways and proteins. Half of IBC do not express hormonal receptors, 40% overexpress HER2, and to a lesser extend EGFR. E-Cadherin over expression is a hallmark of IBC, along with p53 mutation and over expression of MUC1. IBC are more frequently classified by molecular subtyping in the HER2 or the basal subtypes and sets of genes can discriminate IBC from non-IBC with discriminator genes associated with cell motility, adhesion and angiogenesis some of them being potential therapeutic targets.

Recent comprehensive genomic profiling studies of IBC have revealed up to 96% of clinically relevant genomic alterations. Key molecular differences include significant alterations in the PI3K and JAK/STAT pathways, MYC amplification (42% in the triple negative sub group), elevated aberrations in DNA-repair genes and cell-cycle regulations suggesting of significant genomic instability contributing to treatment resistance. Furthermore, they have confirmed higher rates of HER2 overexpression/amplification with neoadjuvant treatment with trastuzumab resulting in improved outcomes for patients with HER2+ IBC. International efforts have initiated prospective collection of IBC specimens in order to facilitate future tumor tissue and blood-based biomarker studies.

In conclusion IBC is a distinct biologic entity of breast cancer. Further understanding of its molecular biology focusing on the tumor microenvironment and immunity may help explain the different clinical behaviors of IBC and non-IBC and develop specific targeted treatments.

References

[1] Ross JS *et al. Breast Cancer res Treat* 2015, 154: 155–162
[2] Costa R *et al. Oncotarget* 2017, 8: 12417–12432

IN18

CHEST WALL DISEASE: THE CLINICAL CONTINUUM BETWEEN INFLAMMATORY AND LYMPHANGITIC BREAST CANCER

Giuseppe Curigliano
European Institute of Oncology, Division of Experimental Therapeutics, Milan, Italy

Chest wall disease represents a presentation of a clinical spectrum ranging from inflammatory to lymphangitic breast cancer. Inflammation and the immune response have long been viewed as a delicate balance that have the ability to promote a durable tumor regression or promote tumor progression. Preclinical models and biomarker studies suggest that inflammatory breast cancer comprises a more important role for the tumour microenvironment, including immune cell infiltration and vasculogenesis, especially lympho-angiogenesis. A recent study by the World IBC Consortium generated whole-genome expression profiles of 137 IBC and 252 non-IBC (nIBC) samples. They identified a 107-gene signature enriched for immunity-related genes that distinguished between responders and nonresponders in IBC. This signature was strongly enriched for immunity-related genes involved in CD8+ T-cell lymphocyte activation processes (Th1-response), suggesting a prominent role for adaptive immunity in determining response to chemotherapy in IBC. There is a potential role of immune-checkpoint inhibitors in treating patients with immune-therapeutic approaches. By blocking interactions between PD-L1 or PD-L2 and PD-1, you may reactivate the immune surveillance, leading to improved anti-tumor activity. The programmed cell death protein-1 (PD-1) is a critical checkpoint molecule that is expressed by T cells upon activation. The PD-1 checkpoint pathway is thought to act primarily in peripheral tissues to dampen ongoing immune responses and/or to prevent damage to self-tissues. PD-1 is expressed by B cells, natural killer (NK) cells, dendritic cells, and activated monocytes, in addition to T cells. PD-1 ligands which include PD-L1 and PD-L2, among others are expressed by macrophages and monocytes, and these can be induced in numerous cell types in an inflammatory environment, like in lymphangitic breast cancer. Some chemotherapies may lead to immunogenic cell death resulting in activation of dendritic cells (DC) and priming of anti-tumor immune responses. This promotion of DC maturation might also explain the capacity of some chemotherapies to reduce T regulators (Treg). In addition, as a higher frequency of proliferating cells is observed in Treg compared with the non-Treg compartment, chemotherapy, which mostly destroys proliferating cells, may tilt the balance from Treg toward effector T cells. Use of metronomic cyclophosphamide (CTX) is the leading product of this therapeutic class. Reversal of immunological tolerance by CTX via inhibition of suppressor cells has been reported. Selective depletion of Treg induced by CTX or other chemotherapeutic drugs requires the use of these agents at low, so-called metronomic doses. Some studies in humans have shown improvement of T cell effector function associated with a reduction in Treg numbers after low dose CTX administration. We hypothesize that use of immune-checkpoint inhibitors in combination with metronomic CTX may induce clinical response in chest wall disease. Across this clinical continuum of the chest wall disease there is an important role of the inflammation cascade. The activation of mature dendritic cells (DCs) through toll like receptors (TLRs) or by inflammatory cytokines converts immature DCs into mature DCs that present specific antigen to T cells, thereby activating them. Maturation of DCs is accompanied by co-stimulatory molecules and secretion of inflammatory cytokines polarizing lymphocytic, macrophages and fibroblast infiltration. It is unknown whether immune cells associated to the IBC micro-environment play a role in this scenario to transiently promote epithelial to mesenchymal transition (EMT) in these cells. Immune and microenvironment factors can induce phenotypic, morphological, and functional changes in breast cancer cells. We can hypothesize that similar inflammatory conditions in vivo may support both the rapid metastasis and tight tumor emboli that are characteristic of chest wall disease and that targeted anti-inflammatory therapy may play a role in this patient population.

References

[1] Bertucci F, Ueno NT, Finetti P, *et al.* Gene expression profiles of inflammatory breast cancer: Correlation with response to neoadjuvant chemotherapy and metastasis-free survival. *Ann Oncol.* 2014; 25(2):358–65.
[2] Bear HD, Tang G, Rastogi P, *et al.* Bevacizumab added to neoadjuvant chemotherapy for breast cancer. *N Engl J Med*. 2012; 366:310–320
[3] Weber J., Immune checkpoint proteins: A new therapeutic paradigm for cancer–preclinical background: CTLA-4 and PD-1 blockade. *Semin Oncol*. 2010. 37(5): 430–9.
[4] Ghiringhelli F, Menard C, Puig PE, Ladoire S, Roux S, Martin F, Solary E, Le Cesne A, Zitvogel L, Chauffert B. Metronomic cyclophosphamide regimen selectively depletes CD4+CD25+ regulatory T cells and restores T and NK effector functions in end stage cancer patients. *Cancer Immunol Immunother*. 2007. 56(5):641–8

IN19

INFLAMMATORY ADVANCED BREAST CANCER. THE ROLE OF DIFFERENT RADIATION TECHNIQUES

Birgitte Vrou Offersen
Aarhus University Hospital, Department of Oncology, Aarhus, Denmark

Locally advanced inflammatory breast cancer (IBC) is a relatively uncommon clinical and pathological disease accounting for 10–15% of locally advanced breast cancers, and it presents unique and therapeutic challenges. International and national guidelines are in agreement that IBC patients should receive neoadjuvant systemic therapy first, followed by surgery and radiotherapy. If surgery is not possible after systemic therapy, radiotherapy should be given.
Due to lack of data from randomised trials documenting gain from radiotherapy in IBC patients the evidence in favour of radiotherapy in these patients rests upon retrospective studies, which also indicates gain from radiotherapy in IBC patients obtaining a pathological complete response after the systemic therapy.
Many issues are of special importance when planning radiotherapy for patients with IBC, and these issues will be addressed in the presentation: Timing of radiotherapy in relation to systemic therapy and surgery, how to do an optimal planning CT scan, use of respiratory gated strategy, use of bolus, target volume definition, dose/fractionation, use of advanced radiation techniques to assure optimal dose coverage of targets and as low dose to organs at risk as possible, use of boost, how to manage planning in a patient operated with mastectomy and an immediate reconstruction, and daily image guidance for radiotherapy.
By using an optimal technique for radiotherapy several goals are reached: The acute radiation-induced morbidity will be lowered,

and this increases the likelihood completing the therapy. In addition, the recurrence risk is undoubtedly lowered, and the risk of late radiation-induced morbidity is also decreased. To further lower the risk of late effects, the patient is also informed to quit smoking to lower her risk of developing late skin morbidity and second cancer.

IN20

MULTIGENE TESTING: AID OR CLINICAL NIGHTMARE

Fabrice André
Gustave Roussy Institute, Department of Medical Oncology, Villejuif, France

Molecular characterisation of breast cancer led to the concept that this disease includes large number of different genomic segment, each one defined by a specific driver. Each of the driver is not associated with the same level of evidence for targetability. ERBB2 amplification is level 1 evidence and its presence is an indication for anti-Her2 therapy. BRCA1/2, PIK3CA, AKT1, ERBB2, ESR1 mutations are level 2 evidence and their presence should lead to the inclusion of patient in a clinical trial. Beyond these seven alterations, there are around 20 genomic alterations for which preclinical studies suggest that a targeted therapy could have antitumor effects. Considering the large number of genomic alterations, several groups have investigated the clinical utility of testing multiple genes. Initial studies have shown that assessing whole genome copy numbers and targeted sequencing was feasible in the context of clinical trial. In the SAFIR01 trial, a very good correlation was observed between CGH array and FISH to determine ERBB2 amplification status. Similar observation was done for next generation sequencing. Altogether, these data suggested that multigene technologies have a good analytical validity. Several studies then evaluated the clinical utility of using these technologies. The SHIVA randomized trial could not detect a PFS improvement in patients treated according to sequencing approach. In the MOSCATO phase II trial, using patient as his own control, it was estimated that next generation sequencing could benefit in around 30% of the patients. Overall, these studies did not report convincing evidence that using large panel of genes could improve outcome. There are several explanations for this apparent lack of efficacy. First, most of the study do not have access to a large portfolio of drugs. Second, there is currently no tool to identify the driver alteration in individual and it's very likely that some of the alterations selected in these trials were actually passengers.
Following these results, clinical research is moving in three ways. First, there are ongoing trials to evaluate the clinical utility of multigene sequencing using a large portfolio of drugs. Second, there are some attempts to develop software and bioinformatics tools to better define a driver. Finally, some are trying to understand which genomic alteration is associated with primary resistance. Finally, besides the utility of multigene sequencing, efforts in the field of targeted therapies are focusing on understanding 2ry resistance and to assess synergism with immunotherapeutics.

IN21

CIRCUALTING TUMOUR DNA ANALYSIS IN BREAST CANCER

Nicholas C. Turner
Breast Cancer Now Research Center at the Institute of Cancer Research, London, UK

Circulating tumour DNA analysis allows a highly accurate and current analysis of tumor genetics, allowing tumor genotyping for patients with advanced cancer, monitoring of therapy, and potential roles in early cancer for residual disease detection and cancer screening. Whilst there is great promise, there is limited evidence of clinical validity and clinical utility for ctDNA analysis. Substantial further research is required to assess how ctDNA analysis is best integrated into clinical practice to improve patient care.

IN22

PRECISION/PERSONALIZED MEDICINE: HOPES AND HYPES

George W. Sledge
Stanford University School of Medicine, Stanford, USA

The past twenty years have been dominated by the emergence of therapies targeting the specific biology of breast cancer subtypes, associated with an improving understanding of breast cancer genomics as well as the development of technologies (e.g., whole exome sequencing and ctDNA) allowing for rapid evaluation of individual patients' cancers. These converging approaches offer patients and physicians the possibility of true personalized medicine, matching the right drugs with the right tumors for therapeutic benefit, minimizing the toxicity of ineffective therapeutics through their elimination and reducing healthcare costs through appropriate allocation of increasingly expensive drugs. At the same time, 'precision' or 'personalized' medicine, like many previous therapeutic waves, is easily over-sold as a solution for the cancer problem, promising but inevitably failing to deliver long-term benefits. The underlying biology of many cancers, in particular due to the complexity of far too many cancers, results in therapeutic futility. The 'N of 1' approach to cancer therapeutics resulting from genoic analyses inevitably emphasizes rare successes over all-to-common and usually unreported, therapeutic failures and violates many hard-won lessons that led to current successes. Finding the balance between hope and hype remains an important goal for the next generation of breast cancer researchers.

IN23

PREVENTION AND MANAGEMENT OF CANCER TREATMENT INDUCED NEUROTOXICITY

Matti S. Aapro
Cancer Center, Clinique de Genolier, Genolier, Switzerland

Surgery, radiation therapy and medical therapy may have detrimental effects on either the central or peripheral nervous system. Pain after breast surgery is not uncommon even one-year after the procedure. Radiation therapy techniques have been improved and tend to spare cerebral tissues, resulting in lesser long-term damage, like loss of cognitive function which tended to be universal several years after whole brain treatment. Central nervous system neurotoxicity after medical therapy manifests as a wide range of clinical syndromes, with a complex cognitive function complaint manly discussed in early (adjuvant) therapy settings. In the peripheral nervous system, chemotherapy-induced peripheral neuropathy (CIPN) is the most frequently observed damage. An impressive amount of agents or procedures has been evaluated to prevent or treat CIPN. In most cases, rigours double-blind trial methodology has shown that these approaches cannot be recommended with sufficient levels of certainty. Duloxetine is accepted by most experts with a moderate level of recommendation. Tricyclic antidepressants (e.g. nortriptyline or desipramine), gabapentin and pregabalin are also considered. Topical gels might be tried. In conclusion, various forms of cancer treatment

neurotoxicity have to be taken into account and regrettably their management, once they occur, is not well codified.

References

[1] Meretoja TJ, Leidenius MHK, Tasmuth T, Sipilä R, Kalso E. Pain at 12 Months After Surgery for Breast Cancer. *JAMA*. 2014;311(1):90–92. doi: 10.1001/jama.2013.278795
[2] Greene-Schloesser D1, Robbins ME. Radiation-induced cognitive impairment–from bench to bedside. *Neuro Oncol*. 2012 Sep;14(Suppl 4):iv37–44. doi: 10.1093/neuonc/nos196.
[3] Dawn L. Hershman, Christina Lacchetti, Robert H. Dworkin, Ellen M. Lavoie Smith, Jonathan Bleeker, Guido Cavaletti. Prevention and Management of Chemotherapy-Induced Peripheral Neuropathy in Survivors of Adult Cancers: American Society of Clinical Oncology Clinical Practice Guideline. *Journal of Clinical Oncology* (2014 June 32 (18): 1941–1967. DOI: 10.1200/JCO.2013.54.0914
[4] Jacqueline B. Stone, Lisa M. DeAngelis. Cancer Treatment-Induced Neurotoxicity: A Focus on Newer Treatments. *Nat Rev Clin Oncol*. 2016 February;13(2):92–105. doi: 10.1038/nrclinonc.2015.152.

IN24

PERITONEAL CARCINOMATOSIS AND ASCITES: BEST PRACTICES

Véronique Diéras
Centre Eugène Marquis, Rennes, France

Breast cancer metastatic sites are in order of frequency bones, liver, lungs and brain. However, many other localizations have been described, including peritoneal cavity.
Usually peritoneal carcinomatosis affects patients with ovarian and gastrointestinal carcinomas, it may derive from breast cancers. The prevalence of peritoneal carcinomatosis is estimated low (less than 5%) and developed later than all other metastatic sites. In a multivariate analysis, high grading, lobular invasive histotype and advanced TNM stage were significantly predictive for peritoneal carcinomatosis.
Peritoneal carcinomatosis is associated with many symptoms impairing quality of life as nausea-vomiting, pain, constipation, and may represents a life-threatening condition with a high mortality rate in case of bowel obstruction.
The strategy should be established by multidisciplinary teams (medical oncologists, surgeons, gastro-enterologists, nutritionists), and reevaluated in a daily practice, with the goal of optimizing patient comfort. In all cases, the therapeutic strategy should be determined after analysis of the global situation: Stage of disease, lines of therapies and results, performance status, nutritional status, age, comorbidities and desires of the patient. In the literature, there are few data concerning only breast peritoneal carcinomatosis. However, the management may be very similar to those due to ovarian cancers.
The mains complications of peritoneal carcinomatosis are ascites and intestinal obstruction. For the last one, the strategy involves a clinical and radiological evaluation, of which computed tomography of the abdomen is the crucial component. The results with an analysis of the prognostic criteria are used to determine whether surgery or stenting is the best option.
For the palliation of symptoms, many medications may be used such as glucocorticoids, antiemetic agents, analgesics and antisecretory agents (anticholinergic drugs, somatostatin analogs, and proton pump inhibitors). Nasogastric tube feeding is no longer used routinely and should instead use in a case- by- case basis for a short period. Studies have confirmed the efficacy of somatostatin analogs in relieving obstruction related symptoms such as nausea, vomiting, and pain. Rehydration is needed in every patients and should be adjusted according to the clinical course. The role for parenteral nutrition should be discussed in the light of identified prognostic criteria.
There is a paucity of trials in palliative care, reflecting methodological challenges in this setting: Difficulties with recruitment, disparities in the stage of disease and prior therapies and the control for numerous comorbidities. However, additional research in the challenging circumstances of palliative care is welcome with main criteria patient reported outcome (PRO).

References

[1] Bertozzi S, Londero AP, Cedolini C, *et al.* Prevalence, risk factors, and prognosis of peritoneal metastasis from breast cancer. *Springerplus*. 2015 Nov 10;4:688. doi: 10.1186/s40064–015-1449-x. eCollection 2015.
[2] Laval G, Marcelin-Benazech B, Guirimand F, *et al.* Recommendations for bowel obstruction with peritoneal carcinomatosis. *J Pain Symptom Manage*. 2014 Jul;48(1):75–91.
[3] Mariani P, Blumberg J, Landau A, *et al.*: Symptomatic treatment with lanreotide microparticles in inoperable bowel obstruction resulting from peritoneal carcinomatosis: a randomized, double-blind, placebo-controlled phase III study. *J Clin Oncol.* 2012 Dec 10;30(35):4337–43.

IN25

END OF LIFE (EOL) COMMUNICATION – THE HEALTHCARE PROVIDER PERSPECTIVE

Lesley Fallowfield
Sussex Health Outcomes Research & Education in Cancer, Brighton & Sussex Medical School, University of Sussex, Brighton, UK

Talking with patients and their relatives honestly about prognosis and end of life issues is never an easy task especially when doctors have developed relationships with patients whom they have cared for over many years. [1] Many barriers to open disclosure are cited including not wanting to distress patients, time-pressured clinics, uncertainty about the disease trajectory and feeling inadequately trained in managing the behavioural reactions of patients. Not surprisingly many admit that they avoid such discussions unless a patient explicitly requests information. Even when the subject is broached, research studies show that the content is often ambiguous, evasive and overly optimistic [2] leaving patients confused about their options and about the true therapeutic aims of further anti-cancer treatments [3] Few doctors are even aware of their own patients' EoL preferences and often have a somewhat nihilistic attitude about the genuinely deliverable benefits of timely, good quality palliative care; hence many patients die in a place not of their choosing and having been in receipt of aggressive therapies within the month before death. This situation is unacceptable and clinicians need much more support, training and practice in how best to initiate and structure discussions about prognosis and EoL. Performing this important but challenging task well should be a quality indicator of good cancer care as understanding more about a patient's goals and priorities permits a closer alignment of these with management plans offered. Oncologists are in the main caring health care professionals but a mismatch is consistently observed between the types of EoL conversations that patients deserve and need and what actually happens in many cancer centres. When further active anti-cancer treatment is futile our patients with breast cancer should not, to paraphrase Christakis [4], experience deaths they deplore in locations they despise because of our impoverished communication.

References

[1] Fallowfield L, *et al.* Blurring of boundaries in the doctor-patient relationship. *The Lancet Oncology*, 15(13);1423–1424 doi: 10.1016/S1470-2045(14)71122-2

[2] Fallowfield LJ, *et al.* Therapeutic aims of drugs offering only progression-free survival are misunderstood by patients, and oncologists may be overly optimistic about likely benefits. *Supportive Care in Cancer* 2016 doi: 10.1007/s00520-016-3408-7
[3] Jenkins V, *et al.* What oncologists believe they said and what patients believe they heard: An analysis of Phase 1 Trial discussions. *JCO* 2011 vol. 29 no. 1, 61–68 doi:10.1200/JCO.2010.30.0814
[4] Christakis N, Death Foretold, 1999

IN26

HARD CHOICES, LAST DAYS, FINAL GIFTS: PATIENT AND FAMILY VOICES AT THE END OF LIFE

Musa Mayer
Metastatic Breast Cancer Alliance, New York, USA

A presentation of the thoughts and feelings of patients and family members who have dealt with end-of-life communication issues, speaking directly about their own experiences and what they've learned.

IN27

GLOBAL ACCESS TO RADIOTHERAPY

Mary K. Gospodarowicz
Princess Margaret Hospital, Department of Radiation Oncology, University of Toronto, Toronto, Canada

The 2011 UN Resolution states that 'the NCDs constitute one of the major challenges for development in the 21st century, which undermines social and economic development throughout the world and threatens the achievement of internationally agreed development goals'. Cancer is a significant component of the global NCD burden with incidence estimated to rise to 24.6 million new cases by 2030. Cancer control requires a broad set of interventions with radiotherapy as a key component that remains vastly under resourced. The Global Task Force on Radiotherapy for Cancer Control (GTFRCC) – Lancet Oncology Radiotherapy Commission *(Lancet Oncol Sept 2015)* was created to understand the global demand for radiotherapy and to quantify the investment needed to achieve global equity in access by 2035. The GTFRCC explored:

- Future *(until 2035)* global burden of cancer and the demand for radiotherapy. These estimates were used to calculate total life-years gained from expanding access to radiotherapy to meet 100% of global demand by 2035, as well as economic benefit from improved life expectancy.
- The facilities, equipment and personnel required to deliver a single radiotherapy treatment. These estimations were used to calculate the costs of creating and delivering the required global radiotherapy capacity.

The Commission's key finding is that expanding access to radiotherapy not only saves or prolongs lives, but delivers economic returns. We estimated that radiotherapy is recommended in 50% of cancer cases, which equates to 7 million cases in 2012. This need is forecasted to increase to 12 million cases in 2035.

Radiotherapy is crucial intervention for many cancers. The projected increase in cancer incidence underscores the urgency to meet the demand. The continuing disparity in access to radiotherapy is being perpetuated by the misconception that it is too costly or impractical to successfully implement in LMICs. The cost of scaling up radiotherapy to meet 100% of global demand by 2035 in LMICs is estimated at US$184 billion. If efficiency measures are applied this cost can be reduced by 50%. If increased incrementally, 26.9 million life-years could be saved in LMICs, with a net economic benefit of US$278.1 B. While not factored into the economic model, radiotherapy also provides immense value for patients through the provision of palliative care and pain relief. This can significantly reduce suffering and disability caused by cancer.

IN28

SHORTAGE OF DRUGS: SOLUTIONS

Alexandru Eniu
Cancer Institute 'Ion Chiricuta', Department of Breast Tumors, Cluj-Napoca, Romania

Among the many factors that need to concur for the effective multidisciplinary management of breast cancer, availability of evidence-based anticancer medicines is a crucial pillar. Decades of well-conducted research have expanded the systemic therapy options for the various subgroups of patients. Access to innovative new therapeutic options that carry an important financial burden is limited by the country/health system's capacity to allocate more resources. However, a recent ESMO survey [1] has shown that, across Europe, several inexpensive yet essential medications required in the treatment of several malignancies including breast cancer, are not always available due to a shortage of drugs. Analyzing the availability of the substances included in the WHO Essential Medicines List [2] provided the shocking evidence that, despite their proven value and low cost, these 'essential medicines for priority diseases' as defined by the WHO, are not universally available even across Europe. As these medicines are needed for virtually all cancer patients, their unavailability compromises the cure or survival of many patients. This is unfortunately an unrecognized problem, as discussion on availability of medicines usually targets the expensive drugs.

The causes for shortages that affect inexpensive, usually generic medicines, are complex but gravitate around the fact that these products are not profitable. There is constant pressure from payers and policymakers, through cost-cutting measures, to reduce costs for instance through tendering based exclusively on price, down to a level that the market becomes not attractive for the pharmaceutical industry. Differences in price across Europe lead to a parallel export of medicines towards the higher profit, leading to shortages in 'lower-price' countries.

What are the solutions? Despite existing regulations, there is no universal shortage reporting mechanisms that would enable forward planning to prevent the issue. Manufacturers are required to provide an early notification when they decide to discontinue or have manufacturing problems, but this measure is not implemented at the national level. The creation of national/regional reporting systems will allow the existence of a catalogues of shortages, essential for forward planning. Countries or regions should establish plans for the management of drug shortages, based on predefined lists of essential medicines that should be universally available and have contingency solutions ready. Importantly, incentives should be offered to maintain manufacturers interested in producing essential yet inexpensive medications. Optimization of procurement systems by longer tender cycles, inclusion besides price of quality track records or manufacturers/suppliers and improvement of predictability of the market are essential to ensure availability of inexpensive medicines. Collaboration of multiple stake holders is key to achieve significant progress and ensure our patients have access to essential and inexpensive medicines.

References

[1] Cherny N, Sullivan R, Torode J, Saar M, Eniu A. Esmo european consortium study on the availability, out-of-pocket costs and accessibility of antineoplastic medicines in Europe,

Ann Oncol. 2016 Aug;27(8):1423–43. doi: 10.1093/annonc/mdw213
[2] http://www.who.int/medicines/publications/essentialmedicines/en/ accessed May 2017

IN29

EHEALTH: FRIEND OR FOE

Timo Schinköthe
CANKADO, Munich, Germany

Modern communication technologies provide new ways of co-operation and interaction. Companies do have teams spread out over continents and working together via the internet. The process of digitalisation and remote cooperation is unstoppable in each industry and service.
Simply put, eHealth is the digital change in medicine and will also become the standard in near future. As in all other industries, a lot of work processes can be optimised using internet driven tools and services.
On the other hand, medicine is not like all other professions. Patients, their disease, their needs, their care and their fears cannot be simply converted into a digital data.
Taking care of a patient, analysing and understanding his situation, needs the use of all five senses and frequently demand empathy. It is, therefore, important to keep an eye on where and how the use of eHealth is beneficial and where perhaps medical skills are curtailed.

IN30

WHAT'S NEW IN BIOLOGY

Aleix Prat
Hospital Clinic, Medical Oncology Department, Barcelona, Spain

Triple-negative breast cancer (TNBC) is a complex entity from a biological point of view; actually, TNBC is comprised of many different disease entities [1]. In this presentation, I will review the most up-to-date data on TNBC from a molecular perspective, with a special focus on the association of many of these biological alterations with clinical outcome and the most promising therapeutic strategies. At the somatic DNA level, the 2 most frequent mutations are TP53 (60–70%) and PIK3CA (~10%) [2]. Additionally, loss of PTEN occurs in 9% of TNBC and, in general, is mutually exclusive with PIK3CA hotspot mutations. At the germline DNA level, the most frequent mutation is BRCA1 (~10%) [3,4]. At the RNA and protein level, the most notable biological feature is an increase in proliferation, most likely due to loss-of-function of DNA-repair genes, retinoblastoma or amplification of cyclin E1. In this scenario, different gene expression-based classifications exist such as intrinsic subtype (Basal-like, Luminal A, Luminal B and HER2-enriched) [5–7] and the 7 TNBC-type subtype (BL1, BL2, M, MSL, IM and Luminal Androgen Receptor [LAR]) [8] have been reported. Although different, they are somewhat concordant in identifying a subgroup of TNBCs, which represent up to 20%, as nonBasal-like or LAR. From a biological perspective, Basal-like tumors should be considered a cancer-type by itself, as suggested by the PanCancer TCGA project across 12 cancer-types, despite having the same tissue of origin as estrogen receptor (ER) positive tumours [9]. Interestingly, nonBasal-like or LAR subtype can be defined as TNBCs but histologically and genetically resemble luminal-like ER-positive breast cancer. LAR tumors are enriched for PIK3CA mutations (~46%) and are less sensitive to chemotherapy. In addition, non-Basal-like tumors might benefit more from docetaxel than carboplatin (in the TNT trial), and might benefit in the future from anti-androgen therapies, like enzalutamide. In the other hand, in addiction to BRCA, ATM and TP53 are other critical genes in the DNA-damage response signalling pathway, which might have a role in basal-like tumorigenesis [10]. With this rational, several clinical trials exploring the role of chemotherapy and biological agents targeting defective DNA-repair pathways. Finally, one important biological process in TNBC is immune infiltration. Indeed, the increase of tumor-infiltrating lymphocytes (TILs) in TNBC is associated with a higher likelihood of achieving a pCR, and better survival outcomes in the adjuvant setting than TNBCs with low degree of TILs [11]. In the metastatic setting, a subgroup of TNBCs, representing 18.5% of all TNBC with PDL1 IHC >1%, benefit from anti-PD1 monotherapy [12]. Whether these tumors are the ones with higher number of TILs is currently unknown. Further studies are need to show how classifying TNBC into distinct molecular entities improve patient outcomes.

References

[1] Prat A., *et al.*, Predicting response and survival in chemotherapy-treated triple-negative breast cancer. *Br J Cancer*, 2014. 111(8): p. 1532–41.2.
[2] Cancer Genome Atlas N., Comprehensive molecular portraits of human breast tumours. *Nature*, 2012. 490(7418): p. 61–70.
[3] Chen S. and Parmigiani G., Meta-analysis of BRCA1 and BRCA2 penetrance. *J Clin Oncol*, 2007. 25(11): p. 1329–33.
[4] Mafficini A., *et al.*, BRCA somatic and germline mutation detection in paraffin embedded ovarian cancers by next-generation sequencing. *Oncotarget*, 2016. 7(2): p. 1076–83.
[5] Parker J.S., *et al.*, Supervised risk predictor of breast cancer based on intrinsic subtypes. *J Clin Oncol*, 2009. 27(8): p. 1160–7.
[6] Prat A., *et al.*, Molecular characterization of basal-like and non-basal-like triple-negative breast cancer. *Oncologist*, 2013. 18(2): p. 123–33.
[7] Perou C.M., *et al.*, Molecular portraits of human breast tumours. *Nature*, 2000. 406(6797): p. 747–52.
[8] Lehmann B.D., *et al.*, Identification of human triple-negative breast cancer subtypes and preclinical models for selection of targeted therapies. *J Clin Invest*, 2011. 121(7): p. 2750–67.
[9] Hoadley K.A., *et al.*, Multiplatform analysis of 12 cancer types reveals molecular classification within and across tissues of origin. *Cell*, 2014. 158(4): p. 929–44.
[10] Konstantinopoulos P.A., *et al.*, Gene expression profile of BRCAness that correlates with responsiveness to chemotherapy and with outcome in patients with epithelial ovarian cancer. *J Clin Oncol*, 2010. 28(22): p. 3555–61.
[11] Disis M.L. and Stanton S.E., Immunotherapy in breast cancer: An introduction. *Breast*, 2017.
[12] Nanda R., *et al.*, Pembrolizumab in Patients With Advanced Triple-Negative Breast Cancer: Phase Ib KEYNOTE-012 Study. *J Clin Oncol*, 2016. 34(21): p. 2460–7.

IN31

THE ROLE OF IMMUNOTHERAPY IN THE TREATMENT OF TRIPLE NEGATIVE BREAST CANCER (TNBC)

Hope S. Rugo
University of California San Francisco Comprehensive Cancer Center, San Francisco, USA

Recent and emerging data have generated great excitement about manipulating the patient's own immune system to attack and eliminate malignant tumors. Although the majority of success has not been in breast cancer, recent studies have increased enthusiasm about this therapeutic modality. A series of immune checkpoints are hardwired into the immune system in order to modulate the duration and amplitude of the immune response, reducing

collateral normal tissue damage. In the tumor, these checkpoints inhibit an effective host anti-tumor immune response. Recently several monoclonal antibodies that block immune checkpoint receptor-ligand interactions have demonstrated unprecedented anti-tumor responses in a wide variety of tumors leading to regulatory approval of numerous agents, including those blocking the programmed cell death protein 1 (PD1) receptor and its ligand programmed cell death-ligand 1 (PD-L1).

Unlike many solid tumors, breast cancer is not typically responsive to immune modulation, although TNBC and HER2+ disease have a higher mutational burden and could be more amenable. Higher levels of tumor infiltrating lymphocytes (TILs) found in TNBC and HER2 positive disease are associated with improved outcome. Expression of PD-L1 is associated with TNBC and higher TILs [1]. Chemotherapy may increase mutational burden or expression of neoantigens through cell death, potentially generating tumor immunogenicity, making combination studies appealing [2].

Four phase I trials in patients with metastatic breast cancer have demonstrated low but durable single agent responses to PD-1 and PD-L1 inhibitors, ranging from 4.8 to 19%. Higher response rates are seen in TNBC, compared to HR+ disease [3–6]. Two large trials enrolling over 100 patients evaluated either atezolizumab or pembrolizumab as single agent therapy for TNBC. Response rates ranged from 5 to 10%, but in both trials the response rate was 23–26% in patients treated in the first line setting, potentially due to multiple mechanisms of resistance in the later line settings [7,8].

Although rare durable responses have been seen, it is clear that combination therapy is a critical next step in the study of immunotherapy for breast cancer. Both pre-clinical and clinical data suggest that chemotherapy can enhance the host immune response, acting as an 'immune agonist.' A 5th phase Ib trial reported a 38% response rate in metastatic TNBC treated with atezolizumab and nab-paclitaxel in combination [9]. Several phase III trials combining immune checkpoint inhibitors with chemotherapy as first line therapy for metastatic TNBC are ongoing, as well adjuvant and post-neoadjuvant trials.

Supporting data suggesting improved response in less heavily pretreated disease, the I-SPY2 neoadjuvant trial demonstrated a marked and significant improvement in estimated pathologic complete remission when pembrolizumab was added to weekly paclitaxel before anthracyclines [10]. Further studies are planned with longer exposure to check-point inhibition.

Ongoing studies are evaluating chemotherapy combinations, as well combinations with immune agonists, MEK inhibitors, HDAC inhibitors, HER2 targeted therapy and cyclin dependent kinase 4/6 inhibitors.

References

[1] Mittendorf EA, Philips AV, Meric-Bernstam F, *et al.* PD-L1 Expression in Triple-Negative Breast Cancer. *Cancer Immunol Res*. 2014;2:361.

[2] Chen G, Emens LA. Chemoimmunotherapy: reengineering tumor immunity. *Cancer Immunol Immunother*. 2013;62(2): 203–216.

[3] Nanda R, Chow LQ, Dees EC, *et al.* Pembrolizumab in Patients With Advanced Triple-Negative Breast Cancer: Phase Ib KEYNOTE-012 Study. *J Clin Oncol*. 2016;34(21):2460–2467.

[4] Dirix LY, Takacs I, Nikolinakos P, *et al.*. Avelumab (MSB0010718C), an anti-PD-L1 antibody, in patients with locally advanced or metastatic breast cancer: A phase Ib JAVELIN solid tumor trial. *SABCS*. 2015.

[5] Rugo HS, Delord JP, Im SA, *et al.* Preliminary efficacy and safety of pembrolizumab (MK-3475) in patients with PD-L1–positive, estrogen receptor-positive (ER+)/HER2-negative advanced breast cancer enrolled in KEYNOTE-028. *Cancer Res* 2016;76 (4 suppl):abstr S5-07.

[6] Emens LA, Braiteh FS, Cassier P, *et al.* Inhibition of PD-L1 by MPDL3280A leads to clinical activity in patients with metastatic triple-negative breast cancer. *SABCS*. 2014:PD1-6.

[7] Schmid P, Cruz C, Braiteh FS, *et al.* Atezolizumab in metastatic TNBC (mTNBC): Long-term clinical outcomes and biomarker analyses. *Proc AACR* 2017:Abst. 2.

[8] Adams S, Schmid P, Rugo HS, *et al.* Phase 2 study of pembrolizumab (pembro) monotherapy for previously treated metastatic triple-negative breast cancer (mTNBC): KEYNOTE-086 cohort A. JCO. 2017;35, (no. 15_suppl):1008.

[9] Adams S, Diamond JR, Hamilton EP, *et al.* Phase Ib trial of atezolizumab in combination with nab-paclitaxel in patients with metastatic triple-negative breast cancer (mTNBC). *JCO*. 2016;34, (no. 15_suppl):1009.

[10] Nanda R, Liu MC, Yau C, *et al.* Pembrolizumab plus standard neoadjuvant therapy for high-risk breast cancer (BC): Results from I-SPY 2. *J Clin Oncol* 2017;35: abstr 506.

IN32

TREATING TRIPLE NEGATIVE ABC

Lisa A. Carey

University of North Carolina, Department of Hematology and Oncology, North Carolina, USA

'Triple negative' breast cancer (TNBC), meaning negative on clinical assays for ER, PR, and HER2, is a name of convenience. It is increasingly clear that on a molecular level this group of tumors, responsible for over 1/3 of metastatic disease, is heterogeneous in ways that may be targetable. However, at the moment, known treatment options are limited to cytotoxic chemotherapy. General principles of care include: Sequential single agent cytotoxics are preferred over combinations unless symptoms or emerging visceral crisis suggests need for augmented response rate. Given the palliative nature of treatment of metastatic disease and the highly variable toxicity profiles of available drugs, decision-making may reasonably be made on the basis of toxicity, schedule and personal preference.

In germline BRCA-associated (gBRCA+) TNBC, the TNT trial found that carboplatin in the first-line setting provided higher response rate and longer initial progression-free survival (PFS) than docetaxel, however the design incorporated a crossover without notable impact of initial drug choice upon overall survival. In sporadic TNBC platinum and taxane appeared equally effective [1]. In CALGB 40502, weekly paclitaxel was superior to the ixabepilone and equally effective but less toxic than weekly nab-paclitaxel in the first-line setting [2]. In the pretreated setting, subset analysis suggests that eribulin is at least equal to capecitabine in later line settings [3].

Recognizing the molecular heterogeneity within TNBC, there is a high degree of interest in identifying targetable subsets that would provide non-chemotherapy options for treatment. Loss of BRCA function and resultant sensitivity to DNA-damaging drugs is likely the underlying reason for platinum superiority over taxane in TNT. Additional support for this targetability comes from the recently reported OlympiAD trial found that the PARP inhibitor olaparib had improved PFS over treatment of physican's choice in pretreated HER2-negative gBRCA+ breast cancer (most of which are TNBC) [4].

Molecular subsetting of TNBC provide additional promising directions, including the luminal androgen-receptor (LAR) and the basal-like immune-activated subsets [5]. Immune checkpoint inhibitors already demonstrate promise [6] and are being broadly studied in TNBC, as do androgen receptor antagonists [7].

While current therapy leverages the expansion of cytotoxic options and supportive care, the average overall survival of less than 2 years in metastatic TNBC supports all the ongoing efforts to develop improved and hopefully targeted agents.

References

[1] Tutt A *et al.* TNT: A randomized phase III trial of carboplatin compared with docetaxel for patients with metastatic or recurrent locally advanced triple negative or BRCA1/2 breast cancer. 2014 CTRC-AACR San Antonio Breast Cancer Symposium. Abstract S3-01

[2] Rugo H *et al.* CALGB 40502/NCCTG N063H: Randomized phase III trial of weekly paclitaxel (P) compared to weekly nanoparticle albumin bound nab-paclitaxel (NP) or ixabepilone (Ix) with or without bevacizumab (B) as first-line therapy for locally recurrent or metastatic breast cancer (MBC). *J Clin Oncol*. 2015 Jul 20;33(21):2361–9.

[3] Kaufman P *et al.* A Phase III, Open-Label, Randomized, Multicenter Study Of Eribulin Mesylate Versus Capecitabine In Patients With Locally Advanced Or Metastatic Breast Cancer Previously Treated With Anthracyclines And Taxanes. *J Clin Oncol*. 2015 Feb 20;33(6):594–601.

[4] Robson ME *et al.* OlympiAD: Phase III trial of olaparib monotherapy versus chemotherapy for patients (pts) with HER2-negative metastatic breast cancer (mBC) and a germline BRCA mutation (gBRCAm). *J Clin Oncol* 35, 2017 (suppl; abstr LBA4).

[5] Burstein MD *et al.* Comprehensive genomic analysis identifies novel subtypes and targets of triple-negative breast cancer. *Clin Cancer Res*. 2015 Apr 1;21(7):1688–98.

[6] Nanda R *et al.* Pembrolizumab in Patients with Advanced Triple-Negative Breast Cancer: Phase Ib KEYNOTE-012 Study. *J Clin Oncol* 2016 Jul 20;34(21):2460–7.

[7] Traina T *et al.* Results from a Phase 2 Study of Enzalutamide, an Androgen Receptor Inhibitor, in Advanced AR+ Triple-Negative Breast Cancer (MDV3100-11). *J Clin Oncol* 33, 2015 (suppl; abstr 1003).

Nursing and Advocacy

OR33

ANALYSIS OF THE GAPS ON METASTATIC BREAST CANCER GLOBAL POLICIES AND ADVOCACY EFFORTS TO SUPPORT POLICY DEVELOPMENT ACROSS THE PATIENT JOURNEY

Maia Thrift-Perry[3], Fatima Cardoso[1,2], Anna Cabanes[4], Tauane Araújo Cruz[4], Katherine Moose Hunt[4], Kyra Faircloth[3].
[1]Champalimaud Clinical Center, Breast Unit, Lisbon Portugal; [2]European School of Oncology, Breast Programme, Milan, Italy; [3]Pfizer, Inc, International Public Affairs, New York, USA; [4]Susan G. Komen, Global Programs, Dallas, USA

Background: Control of late-stage cancers such as metastatic breast cancer (mBC), is an area with high unmet need. Policymakers recognize that a supportive policy landscape is key to tackle the expanding burden imposed by cancers. This is reflected in the growing awareness and prioritized development of National Cancer Control Plans (NCCPs) globally. Despite important progress, current policies emphasize early detection and prevention, failing to address the unique needs of patients who are further along the cancer patient journey.
Objectives: The analysis examines NCCP integration with public health programs across the BC/mBC patient journey, the role of advocacy efforts, and the need for multi-stakeholder engagement to drive policy development. Incorporating contributions of patient advocacy groups, healthcare professionals, wider healthcare community and industry, the analysis aims to exemplify the importance of stakeholder collaboration to advocate for improved BC/mBC patients' outcomes.
Methods: A comprehensive analysis of NCCPs, policies and programs was conducted across 15 geographically and socio-economically diverse countries, which represent a wide range of healthcare systems. Key policy components were identified, aligned to the BC/mBC patient journey, and evaluated using standardized criteria measuring the adoption and implementation of NCCP goals, and BC/mBC-specific policies and programs. Examples of advocacy initiatives and models of promising practices across the patient journey were collected systematically and results stemming from their respective activities were reviewed and included as case studies. A qualitative framework analysis revealed common themes and assessed replicability in a global environment.
Results: Policy development in BC/mBC varies across countries, and key gaps persist in mBC-specific policies. In particular, access to mBC treatments and ongoing support remains a challenge, while care coordination is limited due to inefficient referrals. Further gaps include lack of trained specialists and inadequate funding for innovative cancer therapies. In several countries, provision of palliative care and ongoing support remain in their infancy, and the majority of research and development focuses on BC relative to mBC treatments. Despite this, promising practices of patient advocacy reveal that adaptable models that support policy adoption and change play an important role in policy development, particularly on mBC.
Conclusions: Engaging with stakeholders across the patient journey is critical to improve unmet needs specific to mBC patients. Policy initiatives and promising practices described in this research serve as examples of multi-stakeholder engagement and inform further advocacy and policy development.

BP34

#PACIENTESNOCONTROLE (PATIENTS IN CONTROL): CAMPAIGN TO INCREASE ACCESS TO METASTATIC BREAST CANCER (MBC) TREATMENT IN BRAZIL

Maira Caleffi, Gabriel Johnson, Ana Lucia Gomes, Letícia Cecagno
FEMAMA, Federação Brasileira de Instituições Filantrópicas de Apoio à Saúde da Mama, Management Dept. Porto Alegre, Brazil

Treatment: The public health system, which supports 70% of the population, only provides them chemotherapy. Treatments that have revolutionized the control of the disease for decades, such as Trastuzumab and Pertuzumab, are not available. Trastuzumab is listed among the WHO's essential medications for tackling breast cancer and its benefits are enhanced when associated to Pertuzumab. According to the Cleopatra study (2013), the use of Trastuzumab and Pertuzumab associated to chemotherapy provides a median global survival rate of 56.5 months, compared to the 20 months provided by chemotherapy alone. In 2017, the Brazilian Ministry of Health began assessing the offer these MBC treatments in the public network and called for society's opinion through public consultations. This was a key point in influencing the expansion of access to treatment through popular participation.
Project: As consultations would become available at any time and receive contributions for only 20 days, a fast-produced communication campaign was created, focused on information and mobilization. Pre-existing information about MBC HER2+ was gathered, along with data on challenges faced by patients, medicines evaluated and explanations about how the public consultations would operate. A survey was also created to allow patients to respond about the impact of the disease and treatments on their lives, so as to provide a consolidated report for the Brazilian Ministry of Health. A microsite and the survey were launched within a week, using free tools and turning the action into a role

model easy to apply by NGOs in future cases. The campaign was also promoted in the press and on social media.
Results: Over 2,000 visits to the microsite; 116 women responded the survey, 64 MBC patients, 47 HER2+, 10 combined therapy users; over 42,000 people reached on Facebook; Over 800,000 people impacted by the Press; expressive participation in the public consultations, with the highest number of technical-scientific contributions and the third and fourth higher number of opinion and experience contribution in this kind of consultations made within the country in 2017 to present.
The decision on the inclusion of treatments in the public health system has not been made by the Ministry of Health until this project submission date.
Conclusion: It is possible to contribute to a brighter outlook for MBC patients through effective actions that can be quickly and simply implemented. Within a short period of time and without dedicated resources, it was possible to generate affirmative mobilization to influence public policies for wider access to proper treatment for these patients, engaging the public of interest as advocates.

PR35

INTRODUCTION OF MENTHOL 1% CREAM AS THE ELECTION TREATMENT IN PATIENTS SUFFERING FROM TAXANE INDUCED NEUROPATHY

Anabelen Rodriguez Garcia, Anna Serrahima Mackay, Arianna Rosich Soteras
Hospital Clinc Barcelona, Oncology, Barcelona, Spain

Taxane Induced Peripheral Neuropathy (TIPN) and its effect on Quality of Life (QoL) has been widely described in literature. In that way, we descrive in our recently study Implications of taxane induced peripheral neurotoxicity in breast cancer patients. A descriptive study in hospital Clinic Barcelona, the incidence and grade of TIPN and how it affected the QoL of 38 newly diagnosed breast cancer patients. The 84,4% of the participants presented neuropathy and the symptoms tend to prevail one month after finishing the treatment. The use of topical menthol as a novel analgesic therapy for cancer treatment related neurophatic pain had shown significant promise in some studies. Patient being treated with taxanes were assessed with validate questionnaires and referred an improvement of the pain or diminution of the damaged area by using menthol1%. By using these results we started to treat all breast cancer newly diagnosed patients who referred > grade 1 (FACT-GOG-Ntx 42-38) in order to assess the efficiency of menthol. Patients are being followed by the advanced cancer nurse who assess the TIPN at the beginning of the treatment at the end of the treatment and one month after finishing last cycle. Once > grade 1 TIPN is assessed the following schedule to validate the efficiency is going to be once per month. By comparing the results with our previous study we will be able to attempt to say if menthol is useful for preventing high grades of TIPN in our population and try to reduce the use of analgesics.

PO36

FOSTERING INNOVATION IN ADVOCACY FOR METASTATIC BREAST CANCER

Marina Teahon
Union for International Cancer Control (UICC), Capacity Building, Geneve, Switzerland

Background: An estimated 1.6 million women are diagnosed with breast cancer globally each year, and approximately one-third of these women will develop advanced disease (stages III and IV). Advanced breast cancer requires a robust and individualized response from health systems, as well as long-term social and psychological resources. Patients often face complicated decisions, alongside discrimination and isolation.
The Seeding Progress and Resources for the Cancer Community (SPARC): Metastatic Breast Cancer Challenge was launched in 2015 with the support of Pfizer Oncology to foster initiatives worldwide to address the unique needs of women living with metastatic breast cancer (MBC).
Aim: The initiative intends to empower advocacy groups, hospital networks, support groups and other organisations worldwide, addressing four key priorities:
- Closing the gap on patient information and navigation of care options;
- Raising awareness of specific needs and challenges faced by women with MBC;
- Ensuring MBC is embedded in national breast cancer policies;
- Helping to reduce the incidence of MBC at diagnosis.

Strategy: The MBC Challenge was first launched on World Cancer Day 2015 with a second call for proposals announced on International Women's Day 2017. Proposals were assessed by an external Selection Advisory Group made up of seven breast cancer experts from a range of disciplines.
Assessment criteria included:
- Project's potential to improve the lives of women diagnosed with MBC;
- Organisation's ability to deliver the project objectives;
- Feasibility of project goals considering the funding amount and timeline;
- Sustainability of the project beyond the grant period.

UICC provided ongoing monitoring and support through assigned mentors and a Master Course, a three-month online course covering key topics to maximise projects' success. For first round grantees, World Cancer Day 2016 served as a successful platform for the launch of their projects, generating maximum visibility. These grantees are now completing their projects.
Outcomes: UICC received over 80 initial applications from 46 countries in the first call, and 83 applications from 42 countries in 2017 demonstrating continued demand for MBC support.
Grantees measured the reach of their projects, including numbers of patients supported, healthcare workers trained, institutional collaborations formed and awareness raised via news and social media channels. Interim findings from the first round were presented at the World Cancer Congress in November 2016. Full results from the first cycle and lessons learned for the second cycle will be available to be presented at ABC4.

PO37

PUBLIC HEARINGS AND DEBATE CYCLES FOR PARLIAMENTARIANS ON BREAST CANCER

Maira Caleffi, Thiago Turbay, Polyanna Venturella, Letícia Cecagno, Guilherme Corte, Ana Lucia Gomes
FEMAMA, Federação Brasileira de Instituições Filantrópicas de Apoio à Saúde da Mama, Management Dept., Porto Alegre, Brazil

Background and Context: In Brazil approximately 50% of the cases of breast cancer diagnosed in the public health system are at an advanced stage of the disease. However for more than a decade there has been no incorporation of new treatments of metastatic breast cancer in public health. More than 60% of Brazilian women claim that advanced breast cancer interferes in their work, reducing their income and over 80% of Brazilian women claim to have their quality of life compromised because of the disease.

Aim: Improve the Debate Cycles for Parliamentarians project to provide access to innovative treatments for metastatic breast cancer patients in the public Brazilian health system.
Strategy: Mobilization of NGOs associated with FEMAMA to send a public hearing requirement for members of their states, as states have legal prerogative to release treatment independently regardless of the National Government decision. Of these requests, 11 Public Hearings and Parliamentary Debate Cycles were made in different Brazilian states from 2014 to 2016. Some states have taken on the discussion and are evaluating ways of financing these treatments and the development of pilot projects for making them available to women treated in the public state health system.
FEMAMA has organized a tool kit for the event, including programming, Facebook posts, release, visual identity material, content on in force legislation and access to treatment to subsidize discussions. This project is so innovative in Brazil that FEMAMA won a grant from a sponsor to return to the states after 1 year of the first public hearing to monitor and accelerate results.
Outcomes: Public Hearings and Debate Cycles were performed in 11 different states, regionalizing the debate in the states, rather than the usual debate focused only in Brasilia, capital of Brazil;
Participation of more than 700 people in the events;
Engagement of 51 Parliamentarians and legislative representatives;
More than 35 posts on Facebook, taking the message of the project to more than 90.000 people; 110 articles published in the press, impacting 16.911.734 people; The state regulation from Rio Grande do Norte department is conducting a survey to identify the number of metastatic cancer patients and treatments they need, and then propose a pilot project to release these drugs; The State of São Paulo and Bahia presented a bill for compulsory registration of cancer in their states; 8 Public Hearings (2016) occurred approximately 1 year after the first event to measure what progressed in the states in that period and to push for access to metastatic breast cancer treatment in the states; 3 Cycles of Debates in new states scheduled for May and June 2016.

PO38

A STUDY OF NURSING PROVISION AND MODELS OF CARE FOR PEOPLE DIAGNOSED AND LIVING WITH METASTATIC BREAST CANCER IN BRITAIN: WHAT ARE THE IMPLICATIONS FOR THE PRACTICE? AND WHAT ROLE DOES PATIENT ADVOCACY PLAY?

Catherine Priestley
Breast Cancer Care, Nursing Dept., London, UK

Introduction: UK charity Breast Cancer Care (BCC) believes that everyone diagnosed with metastatic breast cancer has the right to the care they need to help them manage this incurable condition, including the provision of a clinical nurse specialist (CNS). For over a decade Breast Cancer Care has advocated on behalf of people with metastatic disease, campaigning for improvements in their care and treatment.
Aim: To investigate current nursing provision and care models for people diagnosed and living with metastatic breast cancer.
Methods: In December 2016, we commissioned an external research company to undertake an online survey to map current nursing provision for people diagnosed and living with metastatic breast cancer, and to examine different nursing care models through the use of case study and qualitative interviews.
Results: A total of 155 survey responses were received, reflecting a 100% completion rate from NHS trusts across Scotland and Wales, and a 99% completion rate for England. Eight NHS hospital sites were chosen as our case study sites, and 55 staff and 42 patients were interviewed across these sites. Our study found inadequate provision of specialist nursing roles for metastatic breast cancer patients across Britain, with 3/4 of hospitals reporting that there is not enough specialist nursing care and only 1/5 reporting to have some form of dedicated nursing provision. Of those who reported to have nursing provision, many felt unable to spend enough time to care appropriately for their patients. This is despite the recognition amongst 2/3 of our survey respondents that nurses: (i) have the knowledge and skills to provide care, specifically through supporting patients to make decisions relating to their treatment and care; (ii) give patients the information they need to distinguish potential disease progression and recognise and manage side effects of treatments; (iii) support patients to access symptom control to maximise quality of life. Based on the results of this research, BCC has developed a framework for developing an enhanced community support offer for metastatic breast cancer patients so that their needs can be more adequately met and better use is made of specialist medical in-hospital resources, such as the CNS role. This framework will be discussed, alongside a series of recommendations for improving the current management and care of metastatic patients.
Conclusion: As part of BCC's 12 month campaign 'Secondary. Not second rate', patients have been involved and participated in all aspects of this research and campaigning activity. BCC will continue to advocate on their behalf at both a national and local level to call for greater provision of CNS's for people diagnosed and living with secondary breast cancer.

PO39

EDUCATE-EMPOWER-ADVOCATE: A NEW MODEL FOR ADVOCACY AND CREATING CHANGE FOR WOMEN WITH METASTATIC BREAST CANCER

MJ DeCoteau, Shawna Ginsberg
Rethink Breast Cancer, Breast Cancer Dept., Toronto, Canada

Background/Concerns: Right now, there are major delays in getting cancer medicines to market in Canada. There is talk from the Canadian Government of 'prioritization' due to rising costs of innovative new cancer medicines. The assumptions by Government bureaucrats is that 'breast cancer is one of the good ones' and has lots of treatment options already so as a result, new, innovative breast cancer drugs that have been approved and given a positive recommendation as being safe, effective and valuable for patients are not even being negotiated for funding by the provinces.
In addition to this bureaucratic delay, the patient voice and patient values are not formally considered beyond the initial stages of the drug approval process – when a new drug is being considered for funding, we get input in the initial evaluation phase only. After receiving a positive recommendation for funding, drugs then move to provincial negotiations between agencies, provinces and government where it's all about 'affordability' instead of quality of life issues and patient values.
This means Canadian metastatic breast cancer patients aren't currently getting timely access to new innovative treatments that could extend their life.
Method: While there is a lot of advocacy programs globally that are calling on metastatic women to 'advocate' for their needs, few have a concrete model of engagement to affect change.
In 2015, we developed an ambitious, comprehensive three-year plan to educate-empower-advocate for much needed change in healthcare to improve the lives of metastatic breast cancer patients. Our model engages young women, healthcare professionals, industry partners, politicians and decision makers.
Through the Metastatic Breast Cancer Program, Rethink Breast Cancer seeks to educate the metastatic community and public about the unique needs of women with metastatic disease, empower those living with the disease through helpful tools and community – empower them to have a voice, empower them to

fully participate in their treatment plan, and advocate for change to important services and access to treatment.
Results: Expanding the breast cancer conversation to include metastatic patients and building community and resources to empower them. Identifying the gaps in care for Canadian women in order to affect policy change to improve the lives of metastatic breast cancer patients Launch a comprehensive advocacy campaign where we will:

- Work with other patient groups to call for system change and more efficiencies throughout the entire drug approval processes.
- Bring affordability conversation back to 'value' from a patient perspective
- Raise our voices that breast cancer still needs more!

PO40

PATIENT NAVIGATION: MITIGATING THE SURGE OF ADVANCED BREAST CANCER IN SUB-SAHARAN AFRICA

Runcie Chikeruba Wilson Chidebe[1], Charles Tochukwu Orjiako[2,1], Luther-King Fasehun[3]
[1]Project PINK BLUE Health & Psychological Trust Centre, Patient Advocacy & Research, Abuja, Nigeria; [2]University of Nigeria, Department of Psychology, Enugu State, Nigeria; [3]Wellbeing Foundation Africa, Research & Maternal Health, Abuja, Nigeria

Objective: The sub-Saharan region is noted to have a characteristic cancer profile. The adverse mix of late detection rates and poverty results in a high rate of advanced breast cancers and high cancer mortality rates. In Nigeria, cancer leads to 72,000 deaths per annum; this number is set to increase given that there are 102,000 new cases of cancer every year. The mortality incidence for breast cancer is 51% with over 70–80% of breast cancer patients present advanced breast stages III or IV. In an attempt to mitigate the pains of women battling with advanced breast cancer, a metastatic breast cancer (MBC) programme was launched, known as Breast Cancer Navigation and Palliative Programme (BCNPP) with the goal of navigating advanced breast cancer patients, provision of access to palliative care and reducing late presentation of stage III or IV breast cancer in central Nigeria. We trained breast cancer survivors, and oncology nurses on palliative care, home-based palliative and patient navigation.
Method: Forty-two breast cancer survivors and oncology nurses, from 6 municipal areas of Abuja, central Nigeria were scheduled for training sessions on patient navigation and palliative care. An additional cancer help line was launched in the region to connect urban and rural women to palliative care closest to them and metastatic breast cancer support group was set-up.
Results: A mixed methods approach involving qualitative and quantitative analysis revealed that the trained personnel improved in their knowledge of palliative care and an increased commitment on patient navigation. Health centres in the region recorded an increased awareness on palliative care, advanced breast cancer and number of patients returned back to care.
Conclusion: Advanced breast cancer awareness, patient navigation trainings and palliative care programmes are potential useful tools in the sub-Saharan region in mitigating the pains of advanced breast cancer in the region.

PO41

BC III AND IV TREATMENT IN BRAZIL: DIFFERENCES BETWEEN PUBLIC HEALTH, SUPPLEMENTARY HEALTH AND ITERNATIONAL PROTOCOL RECOMMENDATIONS

Maira Caleffi, Ana Lucia Gomes, Julia da Motta, Roberta Fernandes, Ana Paula Goulart, Vanessa Teich
FEMAMA, Federação Brasileira de Instituições Filantrópicas de Apoio à Saúde da Mama, Management Dept., Porto Alegre, Brazil

Context: Over 50% of Breast Cancer (BC) cases diagnosed through the Sistema Único de Saúde – SUS (Public Health System) in Brazil, are discovered at stages III and IV. BC HER2+ represents 15–20% of all cases of the disease, with an estimated 2008 women diagnosed with BC HER2+ in the country in 2016. 75% of Brazil's population uses the SUS exclusively, though treatments for Metastatic Breast Cancer (MBC) have not been incorporated for over 10 years.
Aim: To map existing national and international protocols for the treatment of BC III and IV and identify existing discrepancies regarding treatment available through the SUS and Brazilian Supplementary Health System.
Methods: Analysis of international ASCO, ESMO and NCCN protocols. Mapping of the treatment provided for BC in general and specifically for BC III and IV in the SUS, through the SUS Database (07/2015 to 06/2016). Descriptive personal interview with 100 oncologists active in the supplementary health system. A comparative analysis of results from three sources of information.
Main Outcomes: Conformity in the SUS in relation to international guidelines:
94% for MBC treatment with 1st line HT;
92% for MBC treatment with 2nd line HT;
85% for MBC treatment using 1st line CT;
80% for MBC treatment with 2nd line CT;
0% for 1st and 2nd line MBC HER2+ treatment;
95% for BC III and IV treatment using HT;
84% for BC III and IV treatment using CT;
SUPPLEMENTARY HEALTH TREATMENT STANDARD X INTERNATIONAL GUIDELINES
86% of physicians employed targeted therapy for advanced HER 2+/RH + breast cancer and 90% for patients with MBC;
53% of them used isolated or associated HT on patients with ABC and 52% for MBC.
Conclusions: Within the sphere of MBC, there are striking differences between recommendations from international protocols and those employed in supplementary health in comparison to what is offered by the SUS, especially so for BC HER2+, for which there are no anti-HER2 therapies.

PO42

THE UNMET INFORMATION, SUPPORT AND FINANCIAL NEEDS OF WOMEN WITH METASTATIC BREAST CANCER IN AUSTRALIA: RESULTS OF TWO BREAST CANCER NETWORK AUSTRALIA STUDIES.

Danielle Spence, Jenny Anderson
Breast Cancer Network Australia, Policy Dept., Camberwell VIC, Australia

Background: Breast Cancer Network Australia (BCNA) is the peak organisation for Australians affected by breast cancer. Although metastatic breast cancer (MBC) is incurable, many people are living longer as a result of advances in treatment. It is important to be aware of the unique information, support and financial needs this group may have so that tailored information and support is available, from diagnosis to end of life.

Aim: To synthesise results of two BCNA research projects and determine the unique information, support and financial needs of people with MBC compared to those with early breast cancer (EBC).
Methods: Survey data was extracted from two BCNA online surveys: (1) the BCNA Member Survey 2017 and (2) the Financial Impact of Breast Cancer Project (2016). The member survey invited 35,852 BCNA members to participate in an online survey via email and SMS invitations. A survey link was also made available on the BCNA website to anyone with a diagnosis of breast cancer. The financial project examined out-of-pocket costs of breast cancer for a wide variety of treatments and supportive care services. A mixed-methods approach was used including an online survey conducted and analysed by Deloitte Access Economics and a set of 16 telephone interviews conducted by BCNA written into case studies.
Results: People with MBC represented 5% of the 8,226 member surveys completed. About 1 in 4 people with MBC had unmet information and support needs in the last 12 months, compared to 1 in 10 people with EBC. Managing fatigue was the top unmet information need for both MBC (28%) and EBC (16%) participants. Unique unmet needs of those with MBC included information on clinical trials (34%) and advice that palliative care services can help from diagnosis (28%). About double the proportion of those with MBC (23%) reported having less contact with a Breast Care Nurse than preferred. Managing the financial costs of breast cancer was the second top information need for those with MBC (24%) compared to sixth top for those with EBC (11%).
People with MBC represented 14% of the 1,919 financial surveys completed. Their median out-of-pocket cost was $12,465 within five years of diagnosis. The reported costs of breast cancer were quite variable, depending on diagnosis type and complexity of treatment and supportive care required. The 25th to 75th interquartile range of the median cost of MBC was $8,121 to $25,210 within five years of diagnosis.
Conclusion: BCNA's research shows that Australians with MBC have a higher proportion of unmet information and support needs compared to those with EBC. Their financial costs are substantial and continue for the rest of their lives. Efforts to address issues identified in our research will help to reduce inequities in care.

PO43

TANTO POR HACER

Eliza Puente
Asociacion Mexicana contra el cancer de mama AC, Management Dept., Mexico City, Mexico

For the last three years, worked on creating spaces for women with MBC and their families. Through our MBC support group, we have learned of the great need for more spaces where their voices can be heard in order for their needs to be met. This experience, added to our 15 year history working with and for BC patients in Mexico, leads us to this grant application.
Thanks to the UICC-SPARC MBC grant, last year Fundacion Cimab was able to create and launch www.tantoporhacer.org in which Spanish and Portuguese speaking MBC patients and their families, can find relevant information such as scientific information, nutrition, sexuality, patient testimonies, palliative care, and patients rights, that help them achieve a better quality of life. We also have the support of a Mexican and a Brasilian psycho-oncologist who provide emotional support through the chat room to all the patients, as well as in private one on one virtual sessions.
Derived from the needs expressed by the patients, we conducted two webinars. We have a bimonthly newsletter and invited our patients and families to our chats, and interactive sessions. The topics of the 4 newsletters were: 'Metastatic Breast Cancer and Emotional Reactions', 'Palliative Care', 'Motivation and Positive Attitude' and finally, 'Family Relations'. Social networks, Facebook and Twitter to publicize this platform and invite patients and families to join it. We have had almost 12,000 visit to our web page, 539 persons receive our newsletter, and 3648 follow us in FB.
We made a video testimony of patients and families with metastatic cancer. Its purpose was to raise awareness and generate empathy among the general public of the challenges that patients, families and close friends face every day. The central theme of the video is: 'Tanto por hacer, Tanto por decir' (So much to do, So much to say) in an effort to empower patients so that they ask their governments for access to innovative treatment and join in a call to action to improve their quality of life. The other 2 videos were on end of life will, skin care and make up for the MBC patient. This video reached more than 54,000 persons. Cimab Foundation as a founding member of ULACCAM (Latin American regional women's cancers coalition) and as a founder member of COMESAMA (Coalición Mexicana por la Salud Mamaria), is aware of the enormous need for information and networking opportunities not only in Mexico, but in the region.
We hope to continue to offer the MBC patient a space where her voice can be heard, that has already. We are proud of the power that the patient has gained through this page, and we believe the MBC community will be empowered to seek better and more targeted services, both medical and non-medical, that lead to a better quality of life.

PO44

SOCIAL MEDIA STORYTELLING AS AN ADVOCACY AND SUPPORT TOOL FOR PEOPLE LIVING WITH METASTATIC BREAST CANCER

Janine Guglielmino, Catherine Ormerod,
Arin Ahlum Hanson, MPH, CHES, Ingrid Mapanao
Living Beyond Breast Cancer, Programs and Partnerships, Bala Cynwyd, USA

Introduction: People living with metastatic breast cancer (MBC) often experience feelings of isolation, shame and stigma associated with living with a terminal diagnosis. In the United States more than 60% of Americans report knowing little to nothing about MBC. Living beyond Breast Cancer (LBBC), an information and support nonprofit organization in the U.S., has trained 83 volunteers in its Hear My Voice Metastatic Breast Cancer Outreach Volunteer Program. This program provides tools and training to identify and implement advocacy and outreach projects that lessen isolation for volunteers and others living with this terminal disease while also educating the public about the disease. Two main training elements are: (1) an overview of the current landscape of MBC epidemiology, research, treatments and resources; and (2) an introduction to using personal storytelling to impact advocacy efforts through social media, a medium well suited for personal stories, education and advocacy.
Methods: During the program, volunteers create activities in their communities aimed at reaching others similarly diagnosed and connecting them to resources and support. With guidance from LBBC staff, volunteers also develop and drive a one-day social media campaign to educate the public about MBC by telling their stories through words and pictures. The 2015 campaign, #BeyondtheBreast, delivered the message that breast cancer becomes deadly when it leaves the breast and travels to other organs. In 2016, the #Stage4Lifer campaign was developed, and volunteers told their personal stories about how cancer impacted their lives through words, photos and/or videos. The 2017 class will launch its campaign in September 2017. All campaigns include action steps to drive people to information or resources for those with metastatic breast cancer.

Results: LBBC pre- and post-test analyses of the 2015 and 2016 classes show the training program increased volunteers' knowledge of MBC beyond their personal diagnosis; increased their knowledge of resources for people with MBC; grew their confidence in communicating on social media; and increased their support network. Each social media campaign reached over two million people through Facebook, Instagram and Twitter. Using reports from volunteers, we reached nearly 50,000 individuals through community-based projects.
Conclusions/Implications: LBBC's Hear My Voice Program positively impacts program participants through its education, advocacy and support features. This is an effective model for community outreach for a traditionally isolated group of cancer patients.

PO45

BREAST CANCER KNOWLEDGE AND QUALITY OF LIFE AMONG PARTICIPANTS OF A BREAST CANCER SUPPORT GROUP IN RURAL RUWANDA

Thomas Albert Ndaysaba[4], Vedaste Hategekimana[3], Hildegarde Mukasakindi[4], Alexandra Fehr[4], Egide Mpanumusingo[4], Cyprien Shyirambere[4], Suzannah Johnston[4], Lawrence Shulman[5], Julie Gralow[6], Lydia Pace[1,2], Paul Park[1,2]
[1]Brigham and Women's Hospital, Oncology Dept., Boston, USA; [2]Harvard Medical School, Oncology Dept., Boston, USA; [3]Ministry of Health, Oncology Dept., Kigali, Rwanda; [4]Partners In Health, (POSER) Program on social and economic rights, Kigali, Rwanda; [5]University of Pennsylvania, Abramson Cancer Center, Philadelphia, USA; [6]University of Washington, Fred Hutchinson Canter Research Center, Seattle, USA

Background: Breast cancer patients, particularly those in low- and middle-income countries (LMICs), face many psychological, socioeconomic, and clinical challenges to attaining good quality of life. Support groups have been shown to benefit patients in high-income countries, but few data on breast cancer support groups exist in LMICs. The objective of this study is to describe changes in quality of life and breast cancer knowledge among breast cancer support group participants at the Butaro Cancer Center of Excellence (BCCOE) in northern Rwanda.
Methods: BCCOE implemented the support groups with the support of the Union International for Cancer Control (UICC), through Seeding Progress and Resources for the Cancer Community (SPARC) grant. Implementation was done in three phases: (1) We designed and created a 'Patient Navigator' support group curriculum for BCCOE; (2) We selected and trained three 'Patient Navigators,' staff members at BCCOE interested in working with and leading the support groups; and (3) We identified and invited participants to begin the breast cancer support groups. Descriptive statistics were used to analyze responses. In May 2017, the surveys will be conducted again, and the results of these post-tests will be compared with the baseline results to determine if there were changes in knowledge or quality of life.
Results: We interviewed 15 women between 30 and 65 of age undergoing treatment for breast cancer. In the pre-test, patients had high-levels of basic cancer knowledge; 71% answered questions on breast cancer causes and symptoms correctly, 64% treatment and side effects, and 71% goals of palliative care. However, other areas of knowledge were low, including: Metastasis, risk factors, available services at BCCOE etc. In regard to quality of life, more than 60% of patients experience severe physical discomfort, and responses to questions regarding emotional state varied greatly.
Conclusions: Prior to the implementation of the support groups, patients had adequate knowledge of certain breast cancer domains, but lacked knowledge on other areas. It is possible the support groups helped improve both the knowledge around breast cancer, and the quality of life of the participants.

PO46

BUILDING A VOICE FOR METASTATIC BREAST CANCER PATIENTS THROUGH A MULTI-YEAR AWARENESS CAMPAIGN

Craig Faucette
Canadian Breast Cancer Network, Operations, Ottawa, Canada

Over the past three years the Canadian Breast Cancer Network (CBCN) has successfully developed and launched a 'Living Legacy' metastatic breast cancer awareness campaign. This digital campaign has allowed Canadians living with metastatic breast cancer to share their lived experience through a series of videos. The Living Legacy videos honour Canadian women living with metastatic breast cancer, and demonstrate that their lives and legacies are much more than a cancer diagnosis.
This multi-year campaign has helped galvanize the voice of this patient community and has raised awareness about this form of breast cancer.
In its inaugural year, 'Living Legacy' shared the stories of four Canadian women living with metastatic breast cancer and provided general information about this stage of the disease. The 'Living Legacy' video provided women with metastatic breast cancer the platform to share their stories, their lived experience and their advice for others living with metastatic disease.
An event at Canada's Parliament was hosted to launch the first 'Living Legacy' campaign and was widely attended by members of parliament and parliamentary staff. This provided a key opportunity to inform decision makers about the impact that metastatic breast cancer has on Canadians and how they can help address priority issues for this group of patients.
The second year of 'Living Legacy' continued to build on increasing the voice of Canadians living with metastatic breast cancer by including more women in the campaign. Eight women from across Canada shared how they are more than their diagnosis and shared what their living legacy is.
The third year increased the focus on knowing the sub-types of metastatic breast cancer and understanding how this impacts the treatment options for a patient. Four women, including one who has participated in all three years of 'Living Legacy', shared their sub-type of breast cancer and what this means. This has helped to raise awareness that breast cancer isn't just one disease.
By developing a multi-year campaign, CBCN has allowed the conversation to continue form one year to the next and continues to strengthen the metastatic community that has developed through this campaign. 'Living Legacy' has helped build the voice of metastatic breast cancer patients in Canada and has also increased awareness about the disease within the breast cancer community.
By building this project as a digital initiative, women living across Canada have had the ability to connect online and provide support and share resources.

PO47

CREATING A NOVEL DRUG NAVIGATION TOOL FOR METASTATIC BREAST CANCER DRUGS IN CANADA

Craig Faucette
Canadian Breast Cancer Network, Operations, Ottawa, Canada

Healthcare in Canada is administered at the provincial level, including public drug formularies. Because Canadians are accessing different health care systems depending on the province they

reside in, there is often inequitable access when it comes to drugs, especially for people living with metastatic breast cancer. These systems add new drugs to their formularies at different times and while a drug may be accessible in one province it might not be publicly accessible in another province. To complicate matters, some provincial formularies are shared online for patients and caregivers to access, while others are not published for the public which makes it challenging for patients to understand all their options.

To help patients navigate this complex system CBCN has developed MedSearch, a metastatic breast cancer drug navigation tool. This novel tool allows patients and caregivers to easily find information about which metastatic breast cancer drugs are publicly funded in each province or territory across Canada, including their status within the drug approval process. MedSearch provides general information about the various treatments for metastatic breast cancer and also identifies which treatments are appropriate for certain sub-types. It also directs patients to information about additional funding sources for drugs that aren't currently listed on public formularies.

Patients can search by drug name or by breast cancer sub-type for a list of drugs that are Health Canada approved for treating a certain type of breast cancer. Patients can also search by province/territory to obtain a full list of drugs that are available in on the public formulary. Every drug profile also lists which provinces have publicly funded the drug which allows for a better understanding of the differences in drug access across the Canadian landscape.

MedSearch provides patients and caregivers with comprehensive information about various metastatic breast cancer drugs in one resource. This allows them to more easily navigate the system and better understand drug access specific to their needs. This also supports them in having an informed conversation with their physician about their treatment options. It is a unique resource that helps navigate the most vulnerable patients through a very complex system. This tool is updated regularly as new drugs are approved by Health Canada and is the only resource of its kind in Canada.

This resource demonstrates that a drug navigation tool can greatly improve the patient experience. It can lead to increased understanding of treatment options and navigate patients to resources to help support drug access. MedSearch could be adapted to help provide patient navigation in other health systems.

PO48

SHARE DECISION MAKING FOR BETTER PATIENT PARTICIPATION IN ADVANCED BREAST CANCER CARE

Marga Schrieks
Dutch Breast Cancer Patient Organisation, Quality of Care, Utrecht, The Netherlands

Shared decision making for better patient participation in advanced breast cancer care.

In the Netherlands patients' experiences are implemented to improve shared decision-making (SDM) in the doctor-patient relationship. This is done by preparing the patient for consultations with the clinician, by providing extra time and information to reflect at the treatment options for better care of advanced breast cancer.

B-bewust (www.b-bewust.nl) offers question prompts and (medical) information for patients to prepare for consultations with clinicians. B-bewust has been set up with patients and clinicians. First experiences show that in every step of the patient journey, from diagnose tot palliative care patients deal with information in a limited way. Creating time to reflect may help, as may the degree in which clinicians involve patients in SDM. A 'time-out consultation', combined with SDM stimulates patients to take an active role when making preferential decisions. The point is that there is not one best option for treatment, even in the advances breast cancer period. All patients can make their own fitting choices from the medical option perspective but also from their own perspective of quality of life.

PAs are experience experts with a knowledge of breast cancer care, trained to deploy the patient perspective for improved quality of care. They keep in touch with the care teams of breast cancer units which want to consciously embed B-bewust in their procedures and to motivate patients to take control and SDM.

Topics of the B-Bewust questions for advanced breast cancer for the patients are questions about the metastatic diagnose, the treatment options, (palliative) operation, radiation, chemo, hormonal and immunotherapy, complementary care, trials, pain management and psychological care.

With the checklist of BVN we can support patients to take control of their own live (with the disease) by preparing questions and reflect on what's important for them to have optimal shared decision making (SDM) with their doctor and makes value based healthcare possible. Within two years B-bewust was used by clinicians in at least 17 hospitals. 15 Trained patient advocates helped in this project to implement the checklists. 40% of the patients used the checklists and from the website the tool was uses most of the months at least 700 times. The ultimate goal is to have it implemented in all 90 hospitals in the Netherlands.

PR49

ADVANCED BREAST CANCER IN MALESIA

Viji Nair
National Cancer Society Malaysia, Projects, Kuala Lampur, Malaysia

The National Cancer Society of Malaysia (NCSM) began this project in early 2016 to create an Advanced Breast Cancer (ABC) microsite. Breast cancer is the biggest killer amongst women in Malaysia. Whilst the Malaysian people have become increasingly aware of breast cancer and the importance of early detection due to the collective efforts of the Ministry of Health, NGOs, healthcare providers corporations such as the Estee Lauder Group and others, ABC has been rarely addressed and awareness remains relatively low. According to the National Cancer Registry 2007, 42% of breast cancer incidences are in Stage 3 & 4.

The ABC microsite thus is aimed at further increasing this awareness by bringing more women with ABC to the forefront to speak about their disease.

Through this microsite, NCSM hopes and aims to develop support resources identifying patients/survivors needs, to create support networks, to collaborate with stakeholders such as other cancer related NGOs, healthcare providers etc as well as to support Caregivers.

The microsite will contain a LIVE chat window to connect ABC survivors with each other and through this form support networks and communities.

The anticipated impact of this microsite is as follows:

1. We hope to widen the reach the reach amongst ABC survivors state-wide and eventually nationwide
2. A place for ABC survivors to connect with one another as well as other healthcare providers, counsellors etc.
3. A place to connect caregivers to the issues and problems of problems of survivors.
4. Through the microsite, we hope to bring out more survivors as champions/spokespeople for the progression of a disease that is rarely focused in Malaysia.

The microsite is currently under construction and we are aiming for it to be up and ready by the end of June.

This project is funded by the SPARC Grant.

PO50

COPING WITH METASTATIC BREAST CANCER: THE PATIENTS' PERSPECTIVE IN A BRAZILIAN CANCER CENTER

Maira Caleffi, Norah Ana Burchardt, Isabel Crivelatti, Ana Lucia Gomes, Carlos Gomes, Paula Pohlmann
FEMAMA, Federação Brasileira de Instituições Filantrópicas de Apoio à Saúde da Mama, Management Dept., Porto Alegre, Brazil

Background: Breast cancer (BC) is the second most common type of cancer among women worldwide, with a 2017 estimate of more than 57,000 new cases diagnosed in Brazil. Worldwide, 5–10% of patients have metastatic breast cancer (MBC) at initial diagnosis, and around 30% of patients with BC will develop metastatic disease. The perspective of controlling the disease raises the importance of discussing quality of life (QoL) and other psychosocial effects of MBC for the patients. A survey about patient-reported outcomes was carried out in a Brazilian Cancer Center with the aim of evaluating these aspects.
Methods: After IRB approval, MBC patients were selected from institutional clinical database for phone interviews. Verbal consent was obtained and patients answered a questionnaire containing 28 questions about their experience. RedCap database was created containing de-identified data from interviews for further analysis. MBC patients enrolled on this study have access to health insurance and moderns treatments.
Results: A total of 94 patients with MBC were screened which 24 were deceased and 6 declined. From 64 enrolled patients, 50 were interviewed. Patient's age ranged from 31 to 87y. Median time from diagnosis of MBC to interview was 62 months (range 1–274 months). 52% of patients lived with spouse or partner. Most patients (86%) kept themselves informed about MBC; main sources being doctors (100%), internet (76%), media (71%), other patients (54%) and family (48%). Only 6% didn't know what MBC meant. 60% of patients practiced some kind of physical activity. Only 10% of patients attended support groups. 45% percent of patients stopped working after the MBC diagnosis. Most of them identified their current living status with positive words like 'determination' (98%), 'courage' (96%), 'believe' (94%). Negative words like 'hopelessness' (10%) and 'discouragement' (20%) were reported by fewer patients. When asked about best terms to define their disease phase, only 6% accepted the label 'metastatic' or 'advanced disease'. Even less popular labels were 'recurred disease' (4%), 'palliative' (4%), or 'disseminated' (0%). They preferred their disease phase to be called 'controlled disease' (50%) or 'chronic disease' (28%).
Conclusions: In a population of patients who have access to care, who are living with MBC, an overall optimistic perspective was identified. Regardless of optimism, patients did not accept terms typically used to describe MBC phase. Instead, the patients prefer their disease phase to be called 'disease in control' or 'chronic disease'.
Results suggest there is room for improvement on communication between providers, policy makers and MBC patients, potentially reducing MBC stigma and patients groups meetings.

PO51

CLINICAL STUDY TO IMPROVE PATIENT-HCP COMMUNICATION & ENGAGEMENT FOR NEWLY DIAGNOSED METASTATIC BREAST CANCER PATIENTS

Corrine Ellsworth Beaumont
Worldwide Breast Cancer, Executive Dept., Lewisville, USA

This clinical study determines whether a visual conversation aid designed for mBC patients and health-care professionals (HCPs) will improve shared decision-making and open communication during the initial discussions post metastatic diagnosis. Results will inform the development of an information tool kit for HCPs to better communicate with MBC patients about diagnosis and treatment decisions.
The hypotheses are:

a. A simple patient-centered communication aid is feasible
b. Correlation exists between the visual aid and patient knowledge about their diagnosis and treatment options
c. Patients and HCP's find the communication aid useful in meeting their communication needs, particularly with low engagement patients.

When a patient is diagnosed with mBC, they face difficult information hurdles. Diagnosis information is usually given via oral conversation, with a low retention rates. Information physically handed to the patient is text heavy and written at a high literacy level. For high anxiety or low literacy patients, this makes information inaccessible.
An important next step in this field is to study whether it is possible to improve the understanding in real world settings by improving the quality of patient-provider interaction through visual interventions focused on efficient, motivational, and empathic communication, targeted at both patients and providers. There is little information on the best patterns of communication in dealing with mBC patients, particularly in non text-based interventions. An optimal healing relationship between the patients and their HCPss includes shared decision-making, partnering between patients and clinicians in an environment of trust, and effective open communication through visual means to better address patient literacy and anxiety issues compared to text-heavy materials. An important outcome for this study is what impact the visual intervention may have on patient knowledge, engagement in discussions and decision-making, and best practices for using such interventions
Expected Results: Patients will (i) better understand their cancer type through the use of visuals and therefore memory recall will improve, (ii) understand their treatment options through the use of visuals and memory recall will improve; (iii) find the visuals useful in sharing information with caregivers/family/friends; (iv) prefer to use visually based information over text-heavy literature (v) report reading and using visuals more than text.
HCP's will experience (i) increased participation of patients due to interacting with the visuals; (ii) reduction in the number of times they explain basics of the patient's cancer; (iii) more effective use of their time to discuss other issues; (iV) overcoming misconceptions about mBC.

PR52

EXPERIENCE OF ADVANCED BREAST CANCER PATIENTS IN THE AUSTRALIAN HEALTH SYSTEM AND THEIR EXPECTATIONS OF FUTURE TREATMENTS AND CARE

Catherine Holliday
Centre for Community-Driven Research, Research Department, Ultimo, Australia

This aim of this project was to understand the experience of ABC patients in Australia and their expectations of future treatments and care, and use this information to inform new programs and policy recommendations. The project comprised three parts including a literature of current treatments to identify common challenges for patients with ABC, an original qualitative and qualitative study, and a face-to-face community engagement day with patients and decision-makers. Following the literature review, an online questionnaire (based on the FACT-B validated tool) and structured interview were conducted with 40 participants. There was no significant change in PWB, SWB, EWB, BCS, FACT-G or

TOI 'During treatment' compared with 'Future treatment'. FWB was significantly higher for 'Future treatment' compared with 'During treatment'. There was no statistically significant difference between mean side effects of treatment (mean = 55, SD + 19.69) and Side effects from disease (mean = 46.33, SD = 26.09) p = 0.4731. The majority of participants (n = 23; 57.5%) described a significant, negative impact on QoL as a result of ABC. This was primarily in relation to chemotherapy. 18 participants (45.0%) described not receiving adequate support, and 11 (37.5%) spoke about a lack of information. In both cases, this related to support and information that was relevant and specific to ABC. Overall, participants were more likely to report a side effect related the chemotherapy than hormone therapy or other therapies, and the side effects of chemotherapy were more likely to be difficult to cope with. In relation to future treatments, 20 participants (50.0%) stated that they wanted alternatives and choice, but there was an underlying theme and awareness that a cure was not realistic. The most important values that participants wanted to see in decision-making were access to treatments followed by quality of life and compassion. At the patient day, these results were validated and patients were given the opportunity to discuss them with decision-makers from government, non-profit organisations, clinical and research institutes. In conclusion, the participants in our study described their experience in the health system as complex and their ability to make informed decisions about treatment was limited by sub-optimal communication and gaps in information, particularly in relation to side effects of treatment. In relation to future treatment options and care, participants in this study placed most value on access to treatments and the ability to consider choices, followed by quality of life and compassion in the decision-making process. The results have become the basis of future advocacy campaigns which over time will result in truly patient-driven programs and policies.

PO53

NO LUMP REQUIRED: A PATIENT DRIVEN INFLAMMATORY BREAST CANCER RESERACH INITIATIVE USING THE PEER PLATFORM

Ginny Mason
IBC Research Foundation, West Lafayette, USA

Introduction: Inflammatory breast cancer (IBC) accounts for 1–5 percent of breast cancers in the U.S. It is a rare, aggressive disease often mistaken as mastitis due to the swollen and red appearance of the breast. One third of IBC cases are de novo stage IV (metastatic at diagnosis). Another one third of patients diagnosed stage III become metastatic.
Medical records contain limited documentation of the patient experience. Long term treatment effects are seldom captured. Few IBC patients are able to participate in clinical trials, also impacting data collection. Research of IBC remains limited by disease incidence, funding, and access to patient data.
Methods: An IRB approved registry study was developed by the IBC Research Foundation through CENA (Community Engaged Network for All) to capture data for research and hypothesis development. This alliance of 13 disease advocacy organizations (DAOs) provides tools for patient groups to develop online collaboration among researchers and participants.
CENA is part of the Patient-Centered Outcomes Research Network (PCORnet). PCORnet includes 20 patient-powered research networks (PPRNs), who engage individuals in research. As a part of PCORnet, CENA aims to drive people-centered research on a larger scale among within the healthcare system.
Participants share health data using the Platform for Engaging Everyone Responsibly (PEER), a unique technology solution for collecting health data directly from individuals. Participants set their own privacy parameters and have complete control over how their data is shared for research. Each DAO developed their own survey questions specific to their disease while including a series of common data elements.
The survey is designed to capture detail about the patient experience, such as collateral damage from treatment. The survey can be completed by the patient or next of kin if the patient is deceased, capturing data often lost to research.
Another unique feature is MOSAIC, the online collaborative forum where participants, patients, clinicians, researchers, and other stakeholders come together to design, implement, and disseminate research studies. Operated by the University of California, San Francisco, a CENA partner.
Conclusions: The rapid progression of disease, lack of a geographic cohort, and high mortality impact the ability to engage a diverse IBC patient population for study. As a result, most publications are based on single institution experience and may not represent the broader IBC patient population. The 'No Lump Required' survey was designed to fill that void. Providing a platform for health data collection advances people-driven research and keeps the focus on the patient while bring together all stakeholders in quality research.

PO54

THE WORLD IS NOT ENOUGH: THE TWILIGHT OF MBC PATIENTS' NEEDS

Rania Azmi, Fadia Ibrahim
Fadia Survive & Thrive Association, MBC Patients Advocacy, Kuwait City, Kuwait

Cancer is a complex group of diseases, and each one often involves a chronic, multistep pathological process characterized by dysregulation of cell growth and death, loss of differentiation, inflammation, etc. It is also a known fact that cancer metastasis is the spread of cancer cells to tissues and organs beyond where the tumor originated and it is the single event that results in the death of most patients with cancer. At the time of cancer diagnosis, at least half of the patients already present clinically detectable metastatic disease. A higher number of patients will also have micro-metastases that would be beyond conventional detection techniques. Thus, metastasis is the most life-threatening event in patients with cancer. The process is composed of a number of sequential events which must be completed in order for the tumor cell to successfully metastasize. This process contributes to the complexity of cancer as a multiplex disease.
Although the complexity of cancer is far beyond both scientific and public acknowledgments, the multiplicity and complexity of MBC patients' needs are still to be comprehensively identified, and more importantly, are yet to be proactively addressed, especially as part of the standard of care.
Many studies reported over years the MBC patients' expression of strong and unmet needs for education, information, and intervention for most of their side effects during treatment in every phase of their cancer recurrence journey. Evidence is mixed, while research is undercurrent (at least compared to research in cancer treatment itself) as for how to prevent or manage many of the physical side effects of metastatic breast cancer treatment, not to mention the management of other complications related to MBC patients' psychological, social, financial, and many other needs.
At the same time, there are several initiatives around the world, by governments, private institutions, non-governmental organizations, research foundations, cancer associations, and many others that are dedicated to speed progress in cancer research and find a cure. Over and above, oncologists, regulating authorities, pharmaceutical companies, nurses, patient advocates, caregivers and

families, patients themselves, and the public at large all are heavily involved in the fight against cancer.
Nevertheless, the collective coordination is missing in the world's journey to fight cancer as far as the patients' needs are concerned. At the end of the day, MBC patients are faced with the reality and cruelty of their metastatic disease and the world is not enough to communicate this message. It is the time for all cancer stake holders to work together throughout all phases of the fight against cancer.

Basic and Translational Research

PR55

ARE PALB2 MUTATION CARRIERS AT A HIGHER RISK OF DEATH FROM BREAST CANCER?

Aniruddh Kashyap[1], Cezary Cybulski[1], Wojciech Kluźniak[1], Dominika Wokołorczyk[1], Mohammad Akbari[2]
[1]Pomeranian Medical University, Dept. of Genetics and Pathology, Szczecin, Poland; [2]Women's College Hospital, Women's College Research Institute, Toronto, Canada

Quest for identification of genetic factors (mutations) responsible for worse outcome breast cancer has been a challenge for researchers around the globe. We already know more than 25 genes associated with genetic aetiology of breast cancer, but none of them has been proved to have an unequivocal association with poor prognosis.
Polish population is a homogenous population with fourteen known founder mutations in five genes associated with breast cancer (BRCA1, CHEK2, NBS1, PALB2 and RECQL). In a study using whole exome sequencing of 144 families with familial breast cancer, we detected twenty-four truncating mutations in eight known breast cancer associated genes (Cybulski et al. Clin Genet 2014). It included two founder mutations in PALB2 gene. Later 12 529 women with breast cancer were genotyped and a PALB2 mutation was present in 116 patients and in ten of 4702 controls (odds ratio 4.39, $p < 0.0001$). 10-year survival for women with breast cancer and a PALB2 mutation was 48.0% (95% CI 36.5–63.2), compared with 74.7% (73.5–75.8) for patients with breast cancer without a mutation (adjusted hazard ratio for death 2.27, 95% CI 1.64–3.15; $p < 0.0001$).
It concludes that women with a PALB2 mutation are at an increased risk of breast cancer and might be at a higher risk of death from breast cancer compared to non-carriers (Cybulski et al. Lancet Oncol 2015). Increased attention should be offered to women with breast cancer who carry a PALB2 mutation.

PR56

EFFECTS OF PAN-ACTIVE BCL-2 PROTEIN FAMILY ANTAGONIST SABUTOCLAX ON OVERCOMING DRUG RESISTANCE AND ELIMINATING CANCER STEM CELLS IN HUMAN BREAST CANCER CELLS

Jin Zhang
Tianjin Medical University Cancer Institute & Hospital, The 3rd Department of Breast Cancer, Tianjin, China

The drug resistance phenotype often accompanies deregulated expression of BCL-2 family proteins, which renders a survival signal to withstand cytotoxic anticancer drugs and enhances cancer stem cell (CSC) characteristics. As a result, inhibiting anti-apoptotic BCL-2 family proteins have been proposed as antineoplastic strategies, and inhibitors of anti-apoptotic BCL-2 family proteins are currently being trailed clinically in patients with leukemia, lymphoma or non-small cell lung cancer. However, the effects of inhibitors of anti-apoptotic BCL-2 family proteins on drug resistant breast cancers have not yet been elucidated. In the present study, the tumorigenic properties of two chemoresistant breast cancer cell lines to a pan-active BCL-2 protein family antagonist, sabutoclax, were assessed. We found that sabutoclax showed a significant cytotoxic activity on chemoresistant breast cancer cells both in vitro and in vivo. When doxorubicin was combined with sabutoclax, strong synergistic antiproliferative effect was observed. Sabutoclax induced the blockage of BCL-2, MCL-1, BCL-xL and BFL-1, which in turn led to activate caspase-3/7 and caspase-9 and change the expression of several apoptosis-related genes expression. Furthermore, sabutoclax effectively eliminated CSC subpopulation and reduced sphere formation of these drug-resistant cells through downregulating IL-6/STAT3 signaling pathway, which was roughly confirmed in human breast tumor samples. Our findings indicate that sabutoclax partially overcomes the drug resistance phenotype in chemoresistant breast cancer through cell apoptosis induction and CSC abolishing, which appears to be mediated by the inhibition of several anti-apoptotic BCL-2 family proteins and IL-6/STAT3 pathway. This offers a strong rationale to explore the therapeutic strategy of using sabutoclax alone or in combination for chemotherapy-nonresponsive breast cancer patients.

PO57

MESENCHYMAL CIRCULATING TUMOUR CELL ANALYSIS TO PREDICT EFFICACY OF ERIBULIN FOR METASTATIC BREAST CANCER PATIENTS

Yoshiya Horimoto, Emi Tokuda, Fumi Murakami, Katsuya Nakai, Hideo Shimizu, Mitsue Saito
Juntendo University School of Medicine, Dept. of Breast Oncology, Tokyo, Japan

Background: While there are as yet no established tools or markers for predicting breast cancer treatment effects, liquid biopsy approaches, such as measuring circulating tumour cells (CTCs) and cell-free DNA, have recently been introduced in both preclinical and clinical studies. CTC analyses are well developed and the epithelial mesenchymal transition (EMT) status of CTCs can now also be assessed. We investigated CTCs in metastatic breast cancer patients who had received Eribulin, which reportedly suppresses EMT as a mechanism of tumour suppression, to test the possibility of this method serving as a tool for predicting Eribulin efficacy.
Methods: Nine patients have thus far been enrolled and peripheral blood samples (10 ml) were collected before Eribulin treatment and examined. Seven patients developed metastatic disease after curable surgery for primary breast cancer, while two had Stage IV disease. CTCs were examined using a Microfluidic Chip device at Nihon Gene Research Laboratories (Japan). CTCs positive for pan-cytokeratin and vimentin were defined as epithelial and mesenchymal CTCs, respectively.
Results: Mean patient age at the time of starting Eribulin was 62 years. Median disease free survival after curable surgery was 71 months (range 16-125). The intrinsic subtype rates of the primary tumours were: luminal-HER2(−) 67% (6 cases), luminal-HER2(+) 22% (2 cases), and HER2 type 11% (1 case). Metastatic sites were bone (78%), pleura (22%), liver (22%) and others (22%). Eribulin was administrated as the first, second, third, and fifth line systemic treatment for metastatic disease in 33%, 22%, 33%, and 11% of patients, respectively.
Clinical benefits, i.e. partial response (PR) and stable disease lasting longer than 3 months, were obtained in 3 and 2 patients,

respectively, while 3 patients are awaiting evaluation. All patients except one have maintained treatment effects, to date. One patient was switched to another systemic treatment because she developed central nervous system metastasis, detected just one week after the first Eribulin administration.
CTCs were detected in all 9 patients and the median number of CTCs was 2.5 (range 1–6) per 10 ml. Two patients had mesenchymal CTCs and both showed PR to the treatment. Moreover, in one of the two patients, mesenchymal CTCs disappeared in three months.
Discussion: Our data suggest that mesenchymal CTC determination might be a good tool for predicting Eribulin responsiveness, although the number of samples is still too small for drawing firm conclusions. The relationship between CTC numbers and chemo-effects must be assessed in future studies. We are currently accumulating more patients and plan to analyse CTC changes during the treatment of individual patients.

PO58

REGULATION OF STEMNESS PROPERTIES BY GANODERMA LUCIDUM EXTRACT IN INFLAMMATORY BREAST CANCER CELLS VIA STAT3 REGULATION

Michelle Martinez-Montemayor[2], Mercedes Lacourt-Ventura[2], Pablo Lopez[1], Vanessa Rivera-Amill[1], Tiffany Rios-Fuller[2]
[1]Ponce Health Sciences University, Department of Microbiology, Ponce, Puerto Rico; [2]Universidad Central del Caribe School of Medicine, Dept. of Biochemistry, Bayamon, Puerto Rico

Inflammatory Breast Cancer (IBC) is an aggressive and lethal type of breast cancer (BC), where patients have a 43% increased risk of death, is associated with a negative outcome and an elevated risk of recurrence and metastasis compared with non-inflammatory BC. IBC lethality stems from its unique molecular profile, and high cancer stem cell (CSC) composition. CSCs are responsible for cancer initiation, metastasis, recurrence and drug resistance; making it vital to understand the molecular mechanisms that regulate stem cell properties. CSCs display a CD44+/CD24– surface marker phenotype that is associated with the Janus Kinase 2 (JAK2)/ signal transducer and activator of transcription 3 (STAT3) pathway to promote oncogenesis and maintenance of the stem cell phenotype. Studies show that CD44+ tumor-initiating BC cells had preferential activation of STAT3, suggesting it may be a potential therapeutic target. Moreover, the JAK2/STAT3 pathway is hyperactivated in IBC. Evidence suggests that enriched aldehyde dehydrogenase (ALDH) activity is a hallmark of CSCs, and ALDH+/CD44+/CD24– subpopulations of BC cells express higher levels of pSTAT3. Moreover, our data indicates that Ganoderma lucidum extract (GLE) decreases the activation of STAT3 in IBC in vitro and in vivo. Thus, we hypothesize that GLE decreases stem cell properties via STAT3 regulation in IBC cells. We developed a constitutively active SUM-149 IBC cell STAT3 mutant (cSTAT) to determine the role of STAT3 in IBC and stemness. Our cytometry results show that cSTAT cells have a significantly larger population of CD44+/CD24- cells compared to wild type (wt) SUM-149. More importantly, our results demonstrate that GLE significantly decreases the population of CD44+/CD24- in cSTAT cells. To further analyze if GLE is decreasing stem cell properties, we performed western blot analysis of stem cell-related transcription factors that have a strong correlation with the CSCs phenotype (Nanog, Oct4, and Sox2). Our results show that GLE significantly decreases the expression of these transcription factors in wt SUM-149 cells. In addition, GLE significantly decreases ALDH expression in wt SUM-149 cells compared to control. We conclude that GLE decreases stem cell properties via STAT3 regulation in both of our IBC cell models. Finally, we highlight the effectiveness of GLE in decreasing stem cell properties and identified STAT3 as a potential IBC therapy target. This work was supported by #GM111171, #MD007583, GM103475 (UPR-pilot MMM), #MD008149, #MD007587, #GM110513, Title-V-PPOHA #P031M105050 and Title-V-Cooperative #P031S130068 U.S. DOE, #MD007579. The content is solely the responsibility of the authors and does not represent the official views of the NIH or the U.S. Department of Education.

PO59

IL-2 MEDIATED IMPROVEMENT OF CELL ANTITUMOR ACTIVITY IN ADVANCED BREAST CANCER PATIENTS

Sandra Radenkovic, Marijana Milovic-Kovacevic, Tatjana Srdic-Rajic, Vesna Plesinac-Karapandzic, Vladimir Jurisic, Gordana Konjevic
Institute of Oncology and Radiology of Serbia, Department of Radiation Oncology, Belgrade, Serbia

Introduction: The impaired antitumor cell-mediated immunity and immune deregulation have been shown as major defects in advanced breast cancer patients. In breast cancer, as a naturally immunogenic tumor, examination of IFN gamma production and alterations of cytokines pathways could be of therapeutic significance.
Methods: PBL in patients and controls were analyzed for receptor expression and IL-2 cytokine-induced expression of pSTAT 3 and 5 by Western blot analysis and Flow cytometric analysis.
Results: Compared to the expression in control cultures for both controls and patients, IL2 induced increase in pSTAT3 and pSTAT5 expression. The induction of pSTAT3 and STAT5 expression by IL-2 is present in controls and patients, although the level is much lower in patients. Moreover, the induction of pSTAT5 was being of a higher level than of pSTAT3. IL-2 induced intracellular production of IFNγ in PBL of controls and the effect is significant ($p < 0.01$). Also, in patients with advanced breast cancer the induction of IFNγ in PBL by IL-2 was higher than in untreated cultures ($p < 0.01$). Furthermore, we found that IL-2 induces higher production of IFNγ in CD3-CD16+ NK cells compared to untreated cultures in controls i patients ($p < 0.01$). Level of STAT5 in advanced breast cancer patients in IL-2 treated cultures is much lower than in early breast cancer patients and controls, with the level of STAT5 after culture with IL-2 reaching the level in untreated PBL of controls.
Conclusion: IL-2 mediated induction of STAT3 and STAT5 expression, as well as IFNgamma production in NK cells suggest that cytokines, such as IL-2, could improve impaired NK cell-mediated antitumor activity in advanced breast cancer patients and restore lymphocyte-mediated Th1 anti-tumor response.

PO60

INFLUENCE OF LIPOPHILIC COMPONENTS OF MATCHA-TEA EXTRACT ON PPAR γ DEPENDENT CELL PROLIFERATION

Lennard Schröder
Ludwig Maximilian University, Gynecology and Obstetrics Dept., Munich, Germany

Objective: Matcha green tea contains up to 137 times more epigallocatechin gallate (EGCG) than conventional green tea. EGCG plays a role in the regulation of the nuclear peroxisome-proliferator-activated receptor gamma (PPAR γ). This receptor has antiproliferative, antitumorous and antioxidant properties.

In the following work the PPAR γ-dependent proliferation of breast cancer cell lines, after stimulation with Matcha green tea extract (MTE) is investigated.
Methodology: MTE was dissolved in ethanol and MCF7 and T47D breast cancer cell lines stimulated with the concentrations of 5 μg/ml, 10 μg/ml and 50 μg/ml MTE. As control, ethanol treated MCF7 and T47D cell lines were used. The WST-1 proliferation test was used to measure the proliferation behavior of the cells after 24, 48 and 72 hours. Furthermore, the mRNA was isolated from the stimulated cell lines, converted into cDNA and used for the determination of the expression of the PPAR γ by real time PCR. A Western blot was performed for the qualitative expression behavior of PPAR γ on proteins.
Results: The PCR showed an over-expression of PPAR γ in T47D cells in all three MTE concentrations. At the concentration of 50 μg/ml the expression was significantly increased ($p<0.05$). No significant over – or under – expression were observed in MCF7 cells. The results of the proliferation test (WST-1) revealed a significant proliferation inhibition at 5 μg/ml ($p<0.05$), 10 μg/l ($p<0.01$) and 50 μg/ml ($p<0.001$) in T47D cells after 72 hours.
In MFC7 cells no significant change in the proliferative behavior was observed. In the Western blot, protein levels in T47D cells showed a qualitative increase of PPAR γ, whereas MCF7 showed a decrease.
Conclusion: MTE stimulation of the breast cancer cell line T47D revealed an over-expression of PPAR on both gene and protein levels. In addition, there was a negative correlation between the over-expression of PPAR γ and the proliferation inhibition.
Further in vitro and in vivo studies are necessary to investigate the potential of MTE in the treatment of breast cancer.

PO61

THE IDENTIFICATION OF THE GENES CONCERNING TO THE DISTANT METASTASIS OF TNBC: THE INTERACTION WITH AR AS AN INDEX

Noriko Miwa[1,4], Takashi Ito[2], Hiroki Matsuoka[2], Yasuhisa Shimada[2], Seigo Nakamura[4], Tetsuya Sugita[3], Takahito Onishi[3], Takashi Kawai[2], Toshimasa Yamaguchi[2]
[1]Nishiwaki Municipal Hospital, Breast surgical oncology, Nishiwaki, Japan; [2]Nishiwaki Municipal Hospital, Surgery, Nishiwaki, Japan; [3]Nishiwaki Municipal Hospital, Pathology, Nishiwaki, Japan; [4]Showa University Hospital, Breast surgical oncology, Tokyo, Japan

Introduction: Triple negative breast cancer (TNBC) has been an intractable disease because the effective drug is limited due to the absence of the therapeutic target (Cardoso, F et al, Ann Oncol, 28 (2), 208–217(2017)). TNBC expressing androgen receptor (AR) has rather good prognosis and its expression loss is suggested to relate to the distant metastasis (Sutton, LM et al, Am J Clin Patho, 138, 511–516(2012)). From these findings we hypothesized that AR-associated genes suppress the distant metastasis of TNBC. The candidate genes were identified in TNBC using the interaction with AR as an index.
Methods: This study was approved by the ethics committee and the patients enrolled expressed their consent by the signature. The TNBC tissue specimens B1, B4, and B3 were collected from AR-positive skin metastasis without visceral metastasis, AR-positive lymph node metastasis without visceral metastasis, and AR-negative lymph node metastasis with lung metastasis, respectively. The RNAs converted to cDNA library by TruSeq RNA Access Library Prep Kit (Illumina) were sequenced by HiSeq1500 platform (Illumina). The raw reads were purified by PRINSEQ v.0.20.4 and QCleaner v.4.1.0 and aligned by TopHat v.2.1.0. The B1 and B3, as well as B4 and B3 were compared to detect the differentially-expressing genes using Cufflinks v.2.2.1 with FDR, the cut off value 0.05. These genes were searched for AR-binding site, the genes about EMT, invasion & migration, and lung metastasis, using Androgen Responsive Gene Database, http://software.broatinstitute.org/gsea/msigdb/cards/ALONSO_METASTASIS_EMT_UP, http://software.broatinstitute.org/gsea/msigdb/cards/WU_CELL_MIGRATION, and Massague, J et al, Nature, 436(7050), 518–524 (2005), respectively.
Results and Discussion: (1) Over 98% of the raw reads passed the purification and the alignment ratio of the purified reads was about 97%, which indicated the high reliability of the data. (2) The two pairs of the comparison brought the concordance of the increase or decrease of the expression of the genes common in these two pairs, which indicated the reproducibility of the results. (3) The differentially-expressing genes common in both comparisons were 34 and of these, SCGB2A2 and pepsinogen C had AR-binding site. (4) ADAMTS1, KYNU, and AQP3 were highly expressed in AR-negative LN with lung metastasis compared with AR-positive skin metastasis.
Conclusion: As lung is one of the frequent metastatic sites of TNBC, the current study could contribute to the better understanding the mechanism of the distant metastasis of TNBC and identify the therapeutic target to make TNBC a chronic disease without distant metastasis. We are investigating to verify that the candidate genes suppress the distant metastasis of TNBC.

PR62

DOXYCYCLIN INHIBITS BREAST CANCER STEM CELLS UNDER HYPOXIC CONDITIONS

Almaz Akhunzianov, Olesya Yapparova, Regina Miftakhova, Albert Rizvanov
Kazan (Volga Region) Federal University, Fundamental Medicine and Biology, Kazan, Russian Federation

Doxycycline is a tetracycline derivative, which inhibits protein synthesis by preventing the binding of aminoacyl-tRNA to the A-site on the 30S-subunit of ribosomes in bacteria. Importantly, the 30S-subunit of bacterial ribosome is homologous to the 28S-subunit of mitochondrial ribosome, thus having a potential to affect ribosomal biogenesis eukaryotic cells. The positive effect of antibiotics on cancer patient survival was observed in many clinical trials. For example, in 2005 Ferreri et al. reported the regression of ocular adnexal lymphoma in patients after Chlamidya psitacci-eradicating antibiotic therapy with doxycycline. The exact mechanism by which antibiotics achieve antitumor activity is unknown. In 2015 R. Lamb et al. reported that some widely used FDA-approved antibiotics can inhibit the subpopulation of cancer stem cells (CSC).
The aim of our study was to assess the ability of doxycycline to inhibit the subpopulation of MCF-7 CSCs under hypoxic conditions. Hypoxia is reported to play crucial role in maintaining the CSCs and contribute to cell tumorigenicity. Metastatic niches in advanced breast cancer are characterized by hypoxia. CSC activity was accessed in mammosphere formation assay. We found significant differences in number of mammospheres after doxycycline treatment compared to control under both normoxic (20% O2) and hypoxic (4% O2) conditions. Doxycycline at concentration of 25 mM inhibited tumor sphere formation and reduced number of mammospheres by 68.2% ± 3.1% under normoxic and 70.5% ± 6.8% under hypoxic environment. Further, decrease in mitochondrial membrane potential was shown in doxycycline treated cells by JC-1 staining. Alterations in breast cancer multidrug resistance protein BCRP/ABCG2 level were not observed in doxycycline-treated mammospheres either under hypoxia or normoxia. Our data indicate that doxycycline has potential as combination therapy compound for the treatment of advanced metastatic breast cancer.
The work is performed according to the Russian Government Program of Competitive Growth of Kazan Federal University.

PO63

CANCER ASSOCIATED FIBROBLASTS DISPLAY PHENOTYPIC AND FUNCTIONAL FEATURES THAT RESEMBLE CIRCULATING FIBROCYTES WITH CONSTITUTE A NOVE SUBSET OF MDSCs

Gurcan Gunaydin, Dicle Guc
Hacettepe University Cancer Institute, Basic Oncology, Ankara, Turkey

The studies that have investigated the nature of the cells and molecules responsible for the functional insufficiency of the tumor infiltrating T cells focus on several components; however, the contribution of stromal cellular elements has not yet been well established. Fibroblasts, one of the most abundant cell types found in the stroma, turn into cancer associated fibroblasts (CAFs) and myofibroblasts in the tumor microenvironment. Tissue fibroblasts have previously been shown to have effects on T lymphocyte functions. However, studies investigating the effects of cancer associated fibroblasts on T cells are limited in the literature. Circulating fibrocytes represent a novel MDSC subset and they take part in the tumor immune escape. These fibrocytes display a surface phenotype similar to non-monocytic MDSCs (CD14–CD11chiCD123–) and also show immunomodulatory roles. Since the effector functions of fibrocytes are carried out as tissue fibroblasts, we aimed to evaluate if CAFs demonstrate similar molecular/gene expression patterns and functional characteristics to the circulating fibrocytes. N-Nitroso-N-Methylurea (NMU) induced advanced breast cancer model was utilized to obtain CAFs. Possible DNA damages due to NMU injections were evaluated by Comet Assays. Fibroblasts and CAFs were isolated from cancerous and healthy breast tissues, using an enzymatic protocol with collagenase and hyaluronidase. Isolated CAFs and NFs were immunostained to investigate differential expressions of surface markers such as α-Smooth Muscle Actin (αSMA) and vimentin, in order to distinguish CAFs from NFs. CAFs and NFs were evaluated for their surface marker expressions by flow cytometry and for gene expression profiles by gene set enrichment analysis. Cocultures of CAFs and NFs with PBMCs were performed and CFSE proliferation assays were used for functional analyses. Levels of DNA damage of tumor bearing animals were similar to control levels about 2 months after injections. CAFs were spindle shaped cells unlike their circulating counterparts and had significantly higher levels of αSMA than NFs. CAFs did not express CD80, granulocytic or neutrophilic markers. Their MHC-II expression was lower than NFs. CAFs expressed the myeloid marker CD11b/c; however, its expression was lower than that on their circulating counterparts. They appeared to have developed in a milieu containing THELPER2-like cytokines. CFSE proliferation assays showed the immunosuppressive effects of CAFs similar to their blood-borne counterparts. In summary; CAFs resemble the circulating fibrocytes that were reported to represent a novel MDSC subset, in terms of phenotypic and functional features.

Clinical Issues: Medical Oncology

OR65

IMPACT OF DISEASE PROGRESSION STATUS ON TIME TO DETERIORATION OF PATIENT REPORTED HEALTH RELATED QUALITY OF LIFE IN FORST LINE ER+ HER2-VE ADVANCED/ METASTATIC BREAST CANCER PATIENTS IN THE PALOMA-2 STUDY

Nadia Harbeck[1], Shrividya Iyer[3], Helen Bhattacharyya[4], Ave Mori[5], Johannes Ettl[2]
[1]*Brustzentrum der Universitaet Muenchen (LMU), OB&GYN, Munich, Germany;* [2]*Frauenklinik und Poliklinik Klinikum rechts der Isar, Technische Universität München, München, Germany;* [3]*Pfizer Inc, Global Outcomes & Evidence, New York, USA;* [4]*Pfizer Inc, Statistics, New York, USA;* [5]*Pfizer S.r.l., Clinical Oncology, Roma, Italy*

Objective: Palbociclib plus letrozole significantly improved progression free survival (PFS) compared to letrozole alone in the phase III PALOMA-2 trial. The main objective of the current post hoc analyses was to compare patient reported HRQOL between patients who had a PFS event vs those who did not at the time of data-cut in PALOMA-2 (Pfizer: NCT01740427).
Methods: First line ER+ HER2 – advanced/metastatic breast cancer patients were randomized 2:1 to palbociclib + letrozole (N = 444) or placebo + letrozole (N = 222). Patient reported outcomes were assessed at baseline, day 1 of cycle 2, 3 and day 1 of every other cycle from cycle 5 until progression or end of treatment using the Functional Assessment of Cancer Therapy – Breast (FACT-B) questionnaire. FACT-B produces five subscale scores: physical well-being (PWB), social/family well-being (SWB), emotional well-being (EWB), functional wellbeing (FWB), and a BC subscale (BCS), used to derive overall FACT-B score. Higher scores indicate a better QOL. Patients were stratified by progression status at time of data cut (PFS event vs not) within each treatment arm. Time to deterioration of HRQOL was defined as duration of time between baseline and first occurrence of 7 point or greater decrease for the FACT-B total score with no subsequent increase above threshold. Time to deterioration in HRQOL was compared between patients who did not have a PFS event vs those who did at time of data cut. Comparison was performed within each treatment arm and for both arms combined using survival analysis methods including Kaplan-Meier plots, calculation of hazard ratios (HR) and log-rank tests.
Results: A statistically significantly greater delay in time to deterioration of HRQOL as assessed by the FACT-B total score was observed in patients who did not have a PFS event vs those who did at time of data cut. This delay was seen when looking at in the palbociclib plus letrozole arm (HR: 0.53; 95% CI 0.38-0.73;1 –sided p-value <0.001) and the placebo plus letrozole arm (HR:0.57; 95% CI 0.35–0.91; 1 –sided p-value = 0.009) separately. Similar results were observed between patients who did not have a PFS event vs those who did when the two treatment arms were combined (HR: 0.53; 95% CI 0.41– 0.69; 1– sided p-value <0.001).
Conclusion: A significantly greater delay in deterioration in HRQOL was observed between patients who had experienced a PFS event versus those who did not. The results could imply that delay in progression free survival could help to delay deterioration of HRQOL in ER+ HER2- advanced/metastatic breast cancer.

PO66

ADVERSE EVENTS (AE) OF TARGETED AGENTS ADDED TO ENDOCRINE THERAPY IN PATIENTS WITH HORMONE RECEPTOR-POSITIVE METASTATIC BREAST CANCER: A SYSTEMATIC REVIEW AND META-ANALYSIS

Matteo Lambertini[3], Marco Bruzzone[4], Marcello Ceppi[4], Christian Maurer[3], Noam Falbel Pondé[3], Arlindo R. Ferreira[2], Giulia Viglietti[3], Lucia Del Mastro[4], Catherine Prady[1], Evandro de Azambuja[3], Samuel Martel[3,1]
[1]*CSSS Monteregie Centre/ Hopital Charles Lemoyne, Medical Oncology, Greenfield Park, Canada;* [2]*Hospital de Santa Maria and Instituto de Medicina Molecular of the Faculty of Medicine of the University of Lisbon, Medical Oncology, Lisbon, Portugal;* [3]*Institut Jules Bordet, Breast Cancer Translational Research Laboratory, Brussels, Belgium;* [4]*IRCCS AOU San Martino-IST, Medical Oncology, Genoa, Italy*

Background: Combining targeted agents and endocrine therapy improves outcomes in patients with hormone receptor-positive metastatic breast cancer but increases the risk of AE. However, the overall additional toxicity caused by this strategy remains

unknown. Our meta-analysis aims to better estimate the comparative risk of AE with the combination of endocrine therapy and CDK4/6 inhibitors, PI3K inhibitors, mTOR inhibitors, and anti-HER2 agents in patients with hormone receptor-positive metastatic breast cancer.

Methods: A systematic literature search of MEDLINE, EMBASE, Cochrane Library and proceedings from major conferences up to March 31st 2017 was conducted to identify randomized controlled trials investigating endocrine therapy plus CDK4/6, PI3K, mTOR inhibitors and anti-HER2 agents as compared to endocrine therapy alone in patients with hormone receptor-positive metastatic breast cancer. For each class of agent, two groups were considered: Endocrine therapy plus targeted agent vs. endocrine therapy alone. Summary risk estimates (odds ratio, OR) and 95% confidence intervals (CI) were calculated for each AE within each class of targeted agents for each trial. Pooled analysis was conducted using the random and fixed effects models.

Results: A total of 7865 patients from 15 studies were included in our meta-analysis. Overall, the addition of targeted agents to endocrine therapy was associated with significant higher risk of grade 3–4 AE: OR 2.95 (95% CI 2.47–3.53) for CDK4/6 inhibitors, 2.05 (95% CI 1.63–2.58) for PI3K inhibitors, 1.89 (95% CI 1.40–2.56) for mTOR inhibitors, and 2.33 (95% CI 1.17–4.63) for anti-HER2 agents. Anti-HER2 agents, CDK4/6 and PI3K inhibitors significantly increased the risk of grade 3–4 fatigue, but not mTOR inhibitors (OR 1.48; 95% CI 0.64–3.43). Anti-HER2 agents, PI3K and mTOR inhibitors significantly increased the risk of grade 3–4 diarrhea, but not CDK4/6 inhibitors (OR 1.15; 95% CI 0.46–2.87). Other AE and class specific toxicities will be reported at the conference.

Conclusions: In patients with hormone receptor-positive metastatic breast cancer, the combination of targeted agents and endocrine therapy is associated with significant increased risk of AE. The risk of developing different AE varies largely according to the type of agent used. Potential specific toxicities should be taken account when deciding to opt for combination regimens.

BP67

CHARACTERISTICS OF THE METASTATIC BREAST CANCER POPULATION WITH PIK3CA MUTATION IN THE RANDOMIZED PHASE II STUDY SAFIR02 BREAST (UCBG- 0105/1304)

Claudia Lefeuvre-Plesse[2], Amélie Lusque[14], Ivan Bièche[15,16], Ludovic Lacroix[9,10], Monica Arnedos[8], Mario Campone[18], Florence Dalenc[13], Anthony Gonçalves[20], Fanny Le Du[2], Alexandra Jacquet[21], Hervé Bonnefoi[12], Valéry Attignon[5], Marie-Paule Sablin[17], Isabelle Soubeyran[11], Pascal Jézéquel[19], Jean-Marc Ferrero[1], Nicolas Isambert[4], Christelle Levy[3], Thomas Filleron[14], Thomas Bachelot[7,6], Fabrice André[8,10]

[1]Centre Antoine Lacassagne, Medical Oncology, Nice, France; [2]Centre Eugène Marquis, Medical Oncology, Rennes, France; [3]Centre François Baclesse, Medical Oncology, Caen, France; [4]Centre Georges François Leclerc, Medical Oncology, Dijon, France; [5]Centre Léon Bérard, Molecular Biology platform, Lyon, France; [6]Centre Léon Bérard, INSERM Unit U1052, Lyon, France; [7]Centre Léon Bérard, Medical Oncology, Lyon, France; [8]Gustave Roussy Cancer Campus, Medical Oncology, Villejuif, France; [9]Gustave Roussy Cancer Campus, Department of Medical Biology and Pathology, Villejuif, France; [10]Gustave Roussy Cancer Campus, INSERM Unit U981, Villejuif, France; [11]Institut Bergonié, Biopathology department, Bordeaux, France; [12]Institut Bergonié, Medical Oncology, Bordeaux, France; [13]Institut Claudius Regaud-IUCT Oncopole, Medical Oncology, Toulouse, France; [14]Institut Claudius Regaud-IUCT Oncopole, Biostatistics Department, Toulouse, France; [15]Institut Curie, Platform of Molecular Genetics, Paris, France; [16]Institut Curie, Oncogenetics Laboratoryn Inserm U735, Paris, France; [17]Institut Curie, Medical Oncology, Paris, France; [18]Institut de Cancérologie de l'Ouest, Medical Oncology, Nantes, France; [19]Institut de Cancérologie de l'Ouest, Biopathology department, Nantes, France; [20]Institut Paoli Calmettes, Medical Oncology, Marseille, France; [21]Unicancer, R&D, Paris, France

Background: SAFIR02 study is an ongoing national multicentric phase II randomized trial evaluating targeted therapies matching specific genomic alterations (GA) administered as maintenance after objective response and/or stable disease obtained with chemotherapy in HER2-negative MBC patients. The most frequent genomic alteration is the PIK3CA mutation. This analysis reports the characteristics of this population.

Methods: Eligible MBC patients (PS = 0/1, first- or second-line of chemotherapy, HER2-negative/hormone receptor (HR)-negative or endocrine resistant HR-positive; evaluable per RECIST 1.1; accessible to tumor biopsy; no bone metastases-only disease, no major organ dysfunction) were subjected to tumor biopsy for genomic analysis (CGH arrays, Affymetrix Cytoscan; NGS, Ion Torrent PGM, AmpliSeq). Actionable GA were identified and corresponding targeted therapies were proposed by a multidisciplinary tumor board (MTB). Patients received cytotoxic-based treatment at physician's choice and those with stable or responding disease after 6 to 8 cycles (or at least 4 if stopped for toxicity reason) and targetable GA, were offered randomization between targeted therapy or chemotherapy maintenance until progression or intolerance.

Results: Among 666 patients screened between March 2014 and April 2017, 438 have a mutational profile (NGS) available for MTB. 21% of them (n = 91) have a PIK3CA mutations. As expected, PIK3CA mutations were more frequently observed in patients with HR+/Her2- as compared to TNBC subtype (82 vs 15, 5%, $p < 0.000$, 1). In RH+/Her2-, PIK3CA mutation is associated with a lower benefit from chemotherapy. 42% of patients with PIK3CA mutation presented a PD or death, as compared to 20% in patients without PIK3CA mutation ($p = 0.004$). In the univariate analysis, PIK3CA mutation is not prognostic for OS (median OS = 20 and 21 months in patients with and without PIK3CA mutations respectively, $p = 0.78$).

Conclusion: PIK3CA mutations are frequent in patients with metastatic HR+/Her2- MBC. This mutation is associated with a lower benefit to chemotherapy, but does not affect overall survival. Ongoing work includes merged analysis with SAFIR01 trial (n = 423), and identification of prognostic parameters in patients with HR+/Her2/PIK3CA mutation. These data will be presented at the meeting.

PO68

FIRST-LINE RIBOCICLIB PLUS LETROZOLE FOR POSTMENOPAUSAL WOMEN WITH HR+, HER2-ABC: MANALEESA-2 SAFETY RESULTS

Wolfgang Janni[10], Arlene Chan[4], Arnd Nusch[9], Emilio Alba[5], Thomas Bachelot[3], Miguel Gil-Gil[7], Joseph Kattan[6], Hugues Bourgeois[2], Fadi El Karak[1], Santosh Sutradhar[8], Michelle Miller[8], David Chandiwana[8], Pierfranco Conte[11]

[1]Bellevue Medical Center, Oncology, Mansourieh, Lebanon; [2]Centre Jean Bernard, Oncology, Le Mans, France; [3]Centre Léon Bérard, Oncology, Lyon, France; [4]Curtin University, Breast Cancer Research Centre WA, Perth, Australia; [5]Hospital Universitario Virgen de la Victoria, Oncology, Málaga, Spain; [6]Hôtel Dieu de France Hospital, Oncology, Beirut, Lebanon; [7]L'Hospitalet de Llobregat, Institut Català d'Oncologia, Barcelona, Spain; [8]Novartis Pharmaceuticals Corporation, Oncology, East Hanover, New Jersey, USA; [9]Onkologische Praxis, Oncology, Velbert, Germany; [10]Universitätsklinikum Ulm, Department of Oncology, Ulm, Germany; [11]University of Padua, Istituto Oncologico Veneto, IRCCS, Padua, Italy

Background: In the randomized, Phase 3 MONALEESA-2 study (NCT01958021), first-line therapy with ribociclib (RIB;

cyclin-dependent kinase 4/6 inhibitor; 600 mg/day; 3-weeks-on/1-week-off) + letrozole (LET; 2.5 mg/day; continuous) significantly prolonged progression-free survival vs placebo (PBO) + LET in postmenopausal women with hormone receptor-positive (HR+), HER2-negative (HER2–) advanced breast cancer (ABC; hazard ratio: 0.556; p = 0.00000329; Hortobagyi GN et al. N Engl J Med 2016;375:1738–48). Here we present further safety analyses from MONALEESA-2.

Methods: Adverse events (AEs) were assessed continuously throughout the study and characterized per Common Terminology Criteria for Adverse Events (CTCAE) v4.03. Analyses of key AEs included time to first event, duration (time to AE resolution), rate of associated dose interruptions or reductions, and quality of life changes associated with AEs.

Results: Safety analysis included 664 patients (pts) who received ≥1 dose of study treatment and had ≥1 post-baseline safety assessment (RIB + LET: 334; PBO + LET: 330). Neutropenia was the most common all-grade (G) and G3/4 AE in the RIB + LET arm (74% and 59% vs 5% and 1% of pts in the PBO + LET arm, respectively); febrile neutropenia rates were low (1.5% vs 0%), with no associated deaths. Other G3/4 AEs increased by ≥5% in the RIB + LET vs PBO + LET arm were leukopenia (13% vs 0.3%), elevated alanine aminotransferase (ALT; 9% vs 1%), lymphopenia (7% vs 1%), and elevated aspartate aminotransferase (AST; 6% vs 1%). In the RIB + LET arm, median time to first event was 29 days for ≥ G3 neutropenia (median time to resolution to <G3: 15 days) and 8 days for any-grade nausea (median duration of first episode: 19 days). Neutropenia was the most common AE leading to dose interruptions/reductions; G3/4 neutropenia led to dose interruptions in 51% vs <1% of pts, and reductions in 31% vs 0% of pts in the RIB + LET vs PBO + LET arm. In the RIB + LET vs PBO + LET arm, 15% vs 3% of pts discontinued RIB/PBO with or without LET due to AEs; common AEs leading to discontinuation (>1% of pts) were elevated ALT (5% vs <1%), elevated AST (3% vs 1%), and vomiting (2% vs 0%). No statistically or clinically relevant differences in health-related quality of life were observed for key symptoms using the patient-reported EORTC QLQ-C30 questionnaire.

Conclusion: First-line RIB + LET had a manageable safety profile in postmenopausal women with HR+, HER2– ABC. Neutropenia was the most common AE in the RIB + LET arm, and was transient and reversible with dose modifications. Overall, AEs due to RIB + LET treatment did not impact patient-reported quality of life. Additional AE analyses will be presented at the meeting.

PO69

OVERALL SURVIVAL AND PATIENT-REPORTED IMPAIRMENT BY FATIGUE, PAIN AND TREATMENT TIME IN PATIENTS WITH ADVANCED BREAST CANCER IN ROUTINE PRACTICE: RESULTS FROM THE PROSPECTIVE GERMAN TMK COHORT STUDY

Norbert Marschner[6], Thomas Fietz[7], Jacqueline Rauh[1], Arnd Nusch[5], Ulrike Söling[4], Melanie Frank[3], Lisa Kruggel[2], Martina Jänicke[2]
[1]GIM, Gemeinschaftspraxis Innere Medizin, Oncology, Witten, Germany; [2]iOMEDICO AG, Clinical Epidemiology and Health Economics, Freiburg, Germany; [3]iOMEDICO AG, Biostatistics, Freiburg, Germany; [4]Onkologische Gemeinschaftspraxis Dres. Söling/Siehl, Oncology, Kassel, Germany; [5]Praxis für Hämatologie und internistische Onkologie, Oncology, Ratingen, Germany; [6]Praxis für interdisziplinäre Onkologie & Hämatologie, Oncology, Freiburg, Germany; [7]Schwerpunktpraxis für Hämatologie und Internistische Onkologie, Gastroenterologie, Oncology, Singen, Germany

Introduction: Patients (Pts) with advanced breast cancer (ABC) have to deal with tumour symptoms and side effects of treatment. But how much do they feel impaired by fatigue and pain? And how much do they feel treatment time interferes with daily and professional life?

Methods: The Tumour Registry Breast Cancer (TMK) is an ongoing, prospective cohort study of pts with BC in Germany. More than 250 medical oncologists recruited 4500 pts at the start of (neo) adjuvant or palliative systemic therapy since 2007. Besides pts' and tumour characteristics, all systemic therapies and outcome data are recorded. Here we present an update on the percentage of pts receiving a 2nd- and 3rd-line as well as on overall survival (OS). 840 pts with at least 3 years of follow-up were included in the outcome analysis.

The patient survey MaLife is conducted within the TMK and started 2011. Pts regularly receive a set of questionnaires. This interim analysis presents data on 778 pts with ≥ 1 filled-in questionnaire focusing on how much daily life is affected by fatigue (Brief Fatigue Inventory, interference scale), pain and treatment time (7 items, 5-point likert scale each).

Results: Median age at start of therapy was 63 years. Tumour subtypes were 53% hormone receptor (HR)-positive, Her2-negative, 33% Her2-positive, and 14% triple negative. 26% of pts received endocrine and 74% chemotherapy as 1st-line.

Median OS for pts with HR-positive/Her2-negative tumours was 33.8 months (95%-CI 30.2–40.2, 61% events), for Her2-positive 38.2 (31.3–43.0, 59% events) and for triple negative 16.8 (11.5–22.0, 77% events). The minimum percentage of pts receiving a 2nd or 3rd-line treatment was higher for HR-positive (76% and 54%) than for pts with HR-negative tumours (62% and 36%) (5–9% of pts were lost to follow-up).

For pts participating in MaLife, the first questionnaire was filled-in 3 weeks (median) after start of therapy (T0). 92% of pts returned the T0 and 83% the 6-months questionnaire. Pts rated the fatigue interference score with average 3.4 ± 2.7 out of 10 points at T0. Pain and treatment time interfered 'moderately' with daily and social life. Pts working before diagnosis but not at T0 felt disturbed 'a lot' by the treatment time. 6 months later, the results for fatigue were similar and the feeling of being disturbed by pain and treatment time declined.

Conclusions: Effectiveness and patient-reported outcome data on pts with ABC treated in routine care are rare. The TMK is a valuable source to complement results from clinical trials. The MaLife interim analysis showed that fatigue, pain and treatment time interferes low to moderately with daily life at T0 and 6 months later. Pts who worked before diagnosis are affected a lot by treatment time with regard to professional life.

PO70

HERCEPTIN ALONE IN COMPARISON WITH HERCEPTIN COMBINED EVORILIMUS IN ASIAN PATIENTS WITH HER2+ BREAST CANCER

Farrukh Djuraev, Nigora Atakhanova
Tashkent Medical Academy, Dept. of Oncology, Tashkent, Uzbekistan

Background: Human epidermal growth factor receptor 2 is overexpresed in 10–14% of all breast cancers. Treatment with trastuzumab has led to an improved outcome and prolonged survival of HER2-positive breast cancer patients and today the drug is established as standard of therapy. However, some patients with Her2+ tumors do not respond to Trastuzamab. The aim of the study is to assess efficiency of combined evorilumus and trastizumab cases to decide whether it is effective to reach improvement in time delaying to disease progression, duration of response and time to treatment failure.

Methods: Study included 132 women with HER2+ advanced breast cancer, who had not received systemic therapy for advanced disease, were randomized 2:1 to receive everolimus plus

trastuzumab or trastuzumab alone. Study assessed progression-free survival (PFS) in the full population and in the hormone receptor-negative (HR-) subpopulation. Secondary end points included assessment of the objective response rate, the clinical benefit rate, and safety.
Results: In the Asian population, median PFS was higher in the everolimus combined group with prolonged median PFS by 16.75 months vs trastuzumab alone10.97. In the everolimus arm of the Asian subset, the most common adverse events of any grade were stomatitis (68%), diarrhea (40%), rash (33%) and neutropenia (52%). Neutropenia (grade 3: 36%; grade 4: 5%) and decreased neutrophil count (grade 3: 15%; grade 4: 4%) were the most frequent grade 3/4 adverse events. Serious adverse events included pneumonia (2%), pneumonitis (3%), and interstitial lung disease (4%). There were two deaths (1.5%) during treatment in the everolimus combined therapy vs trastizumab alone.
Conclusions: Recent trials have shown that everolimus has produced promising anti-tumor activity in combination with trastuzumab in HER2-positive breast cancer Results of ongoing studies with everolimus show evidence that using everolimus in earlier stages of the disease, namely in the adjuvant and neoadjuvant settings, could be benefical.

PO71

ERBB2 AMPLIFICATION LEVEL AND PTPN2 GAIN AS POTENTIAL PROGNOSTIC FACTORS IN METASTATIC HER2-POSITIVE BREAST CANCER TREATED WITH TRASTUZUMAB

Sander Ellegard, Cynthia Veenstra, Giseh Pérez-Tenorio, Anna-Lotta Hallbeck, Nils Elander, Olle Stål
University Hospital of Linköping, Oncology, Linköping, Sweden

Background: HER2-positive breast cancer is an aggressive form of breast cancer for which trastuzumab has been successfully used as treatment to improve patient outcome. Trastuzumab resistance is common in the metastatic setting and eventually patients will experience treatment failure. Despite multiple treatment options available, the management of metastatic HER2-positive breast cancer remains a major clinical challenge, and to date no treatment predictive biomarkers are available. We aimed to explore the prognostic value of factors involved in the HER2-dependent PI3K/Akt signalling pathway, as they are likely to be important in trastuzumab resistance.
Materials and Methods: The cohort consists of the first 46 consecutive patients treated with trastuzumab in the metastatic setting at our department between 2000 and 2007, all previously untreated with trastuzumab. HER2 diagnostics were done on primary tumours and, if available, on metastatic core biopsies. Gene copy number variation and protein expression of several components in the PI3K/Akt pathway were determined using droplet digital PCR and immunohistochemistry.
Results: Patients with tumours showing ERBB2 (HER2) amplification level of >5.45 copies had significantly better overall survival (HR 0.4; 95% CI, 0.2 to 0.9) and progression-free survival (HR 0.3; 95% CI, 0.1 to 0.7). Furthermore, gain (≥3 copies) of the gene encoding the tyrosine phosphatase PTPN2 was associated with significantly decreased overall survival (HR 2.0; 95% CI, 1.0 to 4.0) and progression-free survival (HR 2.1; 95% CI, 1.0 to 4.1). However, immunohistochemical staining of PTPN2 did not significantly correlate with outcome. Following multivariate analysis, the prognostic value of ERBB2 and PTPN2 expression remained significant.
Conclusions: The present results suggest that higher ERBB2 amplification level is a positive prognostic factor for patients with metastatic breast cancer treated with trastuzumab. Interestingly, PTPN2 gain was a negative prognostic factor, warranting further studies on its role in HER2 signalling.

PO72

TRIPLET COMBINATION OF ENDOCRINE THERAPY WITH CDK 4/6 INHIBITOR, RIBOCICLIB, AND MTOR INHIBITOR, EVEROLIMUS IN HR+, HER2-ABC: RESULTS FROM THE DOSE-EXPANSION COHORT

Aditya Bardia[4], Javier Cortés[11], Shanu Modi[6], Mafalda Oliveira[11], Mario Campone[2], Brigette Ma[1], Luc Dirix[9], Amy Weise[3], Muaiad Kittaneh[3], Becker Hewes[10], Yingbo Wang[7], Mario Stegert[7], Mohamed Elmeliegy[8], Xiaochun Liu[8], Mariana Chavez-Macgregor[5]
[1]Chinese University of Hong Kong, Oncology, Hong Kong, China; [2]Institut de Cancérologie de l'Ouest (ICO), Oncology, Nantes, France; [3]Loyola University, Chicago Stritch School of Medicine, Chicago, USA; [4]Massachusetts General Hospital, Harvard Medical School, Boston, USA; [5]MD Anderson Cancer Center, University of Texas, Houston, USA; [6]Memorial Sloan Kettering Cancer Center, Oncology, New York, USA; [7]Novartis Pharma AG, Novartis Pharma AG, Basel, Switzerland; [8]Novartis Pharmaceuticals Corporation, Novartis Pharmaceuticals Corporation, New Jersey, USA; [9]Sint-Augustinus Hospital, Oncology, Antwerp, Belgium; [10]Torque Therapeutics, Torque Therapeutics, Massachusetts, USA; [11]Vall d'Hebron Institute of Oncology (VHIO), Oncology, Barcelona, Spain

Background: Preclinical evidence suggests that dual inhibition of the cyclin D–cyclin-dependent kinase (CDK) 4/6 and the phosphatidylinositol 3-kinase/mammalian target of rapamycin (mTOR) pathways may overcome endocrine therapy resistance in hormone receptor positive (HR+), human epidermal growth factor receptor 2-negative (HER2–) advanced breast cancer (ABC). Ribociclib (KISQALI®) is a selective CDK4/6 inhibitor approved in the U.S. in combination with any aromatase inhibitor as a first-line treatment for HR+, HER2– ABC. Ribociclib in combination with exemestane (EXE) + everolimus (EVE; mTOR inhibitor) has demonstrated a manageable safety profile in the dose-escalation part of a Phase 1b study (NCT01857193). Here, we report results from the dose-expansion part of the study in CDK4/6i-naive patients (CLEE011X2106).
Methods: Postmenopausal patients (pts) with HR+, HER2– ABC who were resistant to letrozole or anastrozole were enrolled. Pts with prior exposure to PI3K, mTOR, and/or CDK4/6 inhibitors were eligible; 8 pts had received ≥3 lines of prior antineoplastic therapy. Pts received ribociclib (300 mg, 3 weeks on/1-week off) + EVE (2.5 mg, continuous; based on increased EVE exposure from an expected interaction with ribociclib) + EXE (25 mg, continuous) until disease progression or discontinuation for any other reason. The primary objective was safety and tolerability. The secondary objective was antitumor activity. Tumor responses were assessed by restaging scans every 8 weeks.
Results: At data cut-off (May 20, 2016), 18 pts had been enrolled. In the CDK4/6-naive cohort (n = 16), treatment was ongoing in 13 (81%) pts with a median duration of 1.7 months' exposure (range: 0.7–3.5); and was discontinued due to an adverse event (AE; Grade 3 elevated aspartate transaminase), progressive disease, and withdrawal of consent (n = 1 [6%] each). All-grade AEs, regardless of relationship to study treatment, were reported in 15 (94%) pts; the most common AEs (≥30% of pts) were neutropenia (n = 7; 44%), anemia (n = 6; 38%), and stomatitis (n = 6; 38%). Grade 3/4 AEs occurred in 13 (81%) pts; neutropenia was the only Grade 3/4 AE occurring in >1 pt (n = 7; 44%). One pt had a serious AE (Grade 1 QTcF prolongation with precautionary hospitalization). Dose adjustments were required in 11 (69%) pts. Six pts were evaluable for best overall response; stable disease (n = 4) and non-complete response, non-progressive disease (n = 2) were observed.

Conclusion: Ribociclib + EVE + EXE demonstrated encouraging signs of antitumor activity in pretreated pts with HR+, HER2– ABC, and most patients remained on treatment after 1.7 months of exposure. The study is ongoing, enrolling CDK4/6i-refractory patients; updated safety and efficacy data from this study will be presented at the meeting.

PO73

EFFICACY AND SAFETY OF PALBOCICLIB (PAL) PUS FULVESTRANT (F) BY GEOGRAPHIC REGION IN WOMEN WITH ENDOCRINE-RESISTANT HORMONE RECEPTOR-POSITIVE (HR+), HUMAN EPIDERMAN GROWTH FACTOR RECEPTOR 2-NEGATIVE (HER2-) ADVANCED BREAST CANCER (ABC) FROM PALOMA-3

Nadia Harbeck[1], Marco Colleoni[2], Angela Demichele[6], Nicholas C. Turner[11], Massimo Cristofanilli[10], Shailendra Verma[5], Bethany Sleckman[3], Xin Huang[7], Kathy Puyana Theall[8], Eustratios Bananis[9], Norikazu Masuda[4], Seock-Ah Im[12]
[1]Brustzentrum der Universitaet Muenchen (LMU), OB&GYN, Munich, Germany; [2]European Institute of Oncology, Divisione di Senologia Medica, Milano, Italy; [3]Mercy Clinic Oncology LLC, Oncology, St. Louis, USA; [4]NHO Osaka National Hospital, Breast Oncology, Osaka, Japan; [5]Ottawa Hospital Cancer Centre, Division of Medical Oncology, Ottawa, Canada; [6]Perelman School of Medicine, University of Pennsylvania, Medicine and Epidemiology, Philadelphia, USA; [7]Pfizer Inc, Oncology, San Diego, USA; [8]Pfizer Inc, Oncology Clinical Development, Cambridge, USA; [9]Pfizer Inc, US Medical Affairs, New York, USA; [10]Robert H. Lurie Comprehensive Cancer Center, Feinberg School of Medicine, Chicago, USA; [11]Royal Marsden Hospital and Institute of Cancer Research, Breast Cancer, London, UK; [12]Seoul National University Hospital Cancer Research Institute, Seoul National University College of Medicine, Internal Medicine, Seoul, South Korea

Background: In PALOMA-3, PAL + F showed significant improvement in median progression-free survival (PFS) vs F + placebo (PBO) in patients (pts) with endocrine-resistant HR+, HER2-ABC (cutoff date: Mar 16, 2015; 9.5 vs 4.6 mo; hazard ratio [HR], 0.46; P < 0.0001) (Cristofanilli et al. Lancet Oncol. 2016;425–39). Here, we report the efficacy and safety results by geographic region (North America [NA], Europe [EU], and Asia Pacific [AP]).
Methods: Women who progressed on prior endocrine therapy regardless of menopausal status were randomized 2:1 to PAL (125 mg/d oral [3 weeks on, 1 week off]) + F (500 mg day 1 and 15 of cycle 1 and monthly thereafter) or PBO + F. One previous line of chemotherapy in ABC was allowed. This analysis was based on Oct 23, 2015 cutoff data.
Results: Of 521 pts, 240 enrolled in NA, 167 in EU, and 114 in AP and were included in this analysis. Baseline demographics were similar between regions; however, AP pts were younger (median age of 53 vs 58 y in both NA and EU), and therefore more AP pts were pre/perimenopausal (38% vs 16% in both NA and EU). In NA, more pts had visceral disease (63% vs 57% in EU and 57% in AP). PAL + F improved median PFS vs PBO + F in the overall population (11.2 [95% CI, 9.5–12.9] vs 4.6 mo [95% CI, 3.5–5.6]; HR, 0.50; P < 0.0001) and in NA (9.9 [95% CI, 7.4–11.3] vs 3.5 mo [95% CI, 2.0–5.5]; HR, 0.52; P < 0.0001), EU (13.4 [95% CI, 10.8–15.9] vs 5.3 mo [95% CI, 3.3–9.2]; HR, 0.46, P < 0.0001), and AP (12.9 mo [95% CI, 9.2–15.5] vs 5.8 mo [95% CI, 3.6–9.2]; HR, 0.51; P < 0.005). Objective response rate (ORR) was higher with PAL + F vs PBO + F in NA (24% [95% CI, 16.8–32.8] vs 9% [95% CI, 3.4–18.5]), EU (36% [95% CI, 25.6–46.6] vs 13% [95% CI, 4.4–28.1]), and AP (22% [95% CI, 12.1–34.2] vs 12% [95% CI, 3.4–28.2]). Clinical benefit response rate (CBR) was higher with PAL + F vs PBO + F in NA (58% [95% CI, 48.1–66.5] vs 28% [95% CI, 18.0–40.7]), EU (69% [95% CI, 58.1–78.5] vs 42% [95% CI, 26.3–59.2]), and AP (65% [95% CI, 51.6–76.9] vs 45% [95% CI, 28.1–63.6]). Treatment-emergent adverse events (AEs) for all grades occurred in 99%/99% of pts (PAL + F/PBO + F) in NA, 97%/84% in EU, and 100%/92% in AP. With PAL + F, the most common AE in each region (all grade/grade ≥3) was neutropenia, (78%/62% in NA, 83%/59% in EU, and 95%/91% in AP). In general, regardless of treatment, pts from EU had lower incidences of fatigue, infections, nausea, stomatitis, alopecia, diarrhea, and rash vs pts from NA or AP.
Conclusions: In all geographic regions analyzed (NA, EU, and AP), PAL + F demonstrated improvement in PFS, ORR, and CBR vs PBO + F in pts with HR+, HER2-ABC; the magnitude of benefit was comparable between regions. The safety profile of PAL + F was similar to previous results; neutropenia was the most commonly reported AE.

PO74

EFFICACY AND SAFETY OF PLATINUM AND METRONOMIC CYCLOPHOSPHAMIDE IN TRIPLE NEGATIVE BREAST CANCER

Giulia Viale, Marzia Locatelli, Carmen Criscitiello, Dario Trapani, Giuseppe Curigliano
European Institute of Oncology, Division of Early Drug Development, Milan, Italy

Background: Triple negative breast cancer (TNBC) accounts for approximately 15–20% of breast carcinomas and is associated with poor prognosis. Platinum-based regimens showed efficacy in this tumor subtype, particularly in cases with defective BRCA DNA repair pathways. Cyclophosphamide administered at low metronomic doses has the potential of downregulating regulatory T cells.
Methods: Our aim was to evaluate the efficacy and safety of a combination of cisplatin and metronomic cyclophosphamide in patients with advanced TNBC. Cisplatin was administered at the dose of 60 mg/mq every 3 weeks up to 6–8 cycles; cyclophosphamide was given orally (50 mg daily) in a continuous regimen both concomitant and as maintenance therapy after cisplatin. Data on toxicity were reported according to Common Terminology Criteria for Adverse Events Version 4.0.
Results: A total of 47 patients with advanced TNBC were treated in our Institute from October 2011 to September 2015. Patients with uncontrolled brain metastases or leptomeningeal disease were excluded. A fair number of patients (36% of the cohort) was largely pretreated, with ≥3 lines of chemotherapy received in the metastatic setting. The treatment was generally well tolerated. The most common adverse event (AE) was G1-G2 hematologic toxicity, but the incidence of G3 anemia and leukopenia was 2% and 9.4% respectively. Only one case of G4 febrile neutropenia was reported. Other observed AEs were nausea, vomiting, neurotoxicity and fatigue, commonly of grade 1–2; although 1% G3 fatigue was reported and one case of G3 transaminase elevation. Severe adverse events occurred in 3 patients (2 thromboembolic events and 1 case of pulmonary edema). Hematologic toxicity was managed with cisplatin dose delay (23% of patients) or dose reduction (28% of patients) in the majority of cases, but 3 patients definitively interrupted treatment with cisplatin due to persistent hematologic toxicity. An additional 10% of cisplatin dose reduction was due to other causes, as neurotoxicity or elevation of transaminases. Although no dose reductions were made for cyclophosphamide, 4 patients temporary suspended treatment due to persistent neutropenia. Data on efficacy were available for 43 patients: Objective response rate was 23.3% and clinical benefit – defined as partial/complete response or stable disease at 6 months after treatment– was 57.9%. No significant correlation between response to treatment and age, extent and site of disease, or time after surgery has been observed.
Conclusion: The combination of cisplatin and metronomic cyclophosphamide showed efficacy with a favorable toxicity profile in patients with advanced TNBC. This regimen could represent a potential therapeutic option with a biologic rationale in TNBC.

PO75

RETROSPECTIVE ANALYSIS OF ADVANCED LUMINAL BREAST CANCER PATIENTS TREATED WITH ENDOCRINE THERAPY (ET) AND PALBOCICLIB WITHIN A COMPASSIONATE USE PROGRAMME

Christian Maurer, Philippe Aftimos, Evandro de Azambuja, Samuel Martel, Matteo Lambertini, Noam F. Pondé, Arlindo R. Ferreira, Martine Piccart
Jules Bordet, Oncology Clinic, Breast Dept., Bruxelles, Belgium

Introduction: Palbociclib combined with fulvestrant has been granted EMA approval in November 2016 for patients with hormone receptor-positive (HR+), HER2-negative (HER2-) metastatic breast cancer (MBC) who have received prior ET. However, the benefit of palbociclib in MBC patients progressing after multiple treatment lines and especially after mTOR inhibition is unknown. In this retrospective study, we report on safety and activity of palbociclib and ET after ≥ at least 4 lines of standard treatment for HR+/HER2- MBC.
Material and Methods: This is a single center (Inst. Jules Bordet, Belgium) retrospective analysis of Pfizer's compassionate use program (active between October 2015 and February 2017) of palbociclib in combination with ET for patients with HR+, HER2- MBC progressing after ≥4 lines of standard treatment for MBC. Study outcomes were overall response rate, disease control rate (DCR) at 24 weeks, progression-free survival, overall survival, and safety. Descriptive statistics and survival analyses were performed.
Results: A total of 21 patients with HR+, HER2- MBC received palbociclib: 17 (81%) in combination with an aromatase inhibitor (AI) and 4 (19%) with fulvestrant. Median age was 58 years (range, 37–80). The majority (90.5%) of patients were enrolled after visceral progression. Median number of prior treatment lines for MBC was 6 (range, 4–13). Sixteen patients (76.2%) had been treated with mTOR inhibitors prior to palbociclib. Three patients (14.3%) achieved a partial response (with two of them having progressed on everolimus) and 4 patients (19.0%) experienced a stable disease (SD). DCR ≥ 24 weeks was 19.0%. One patient progressing on 13 prior treatment lines showed SD for 54.3 weeks with palbociclib + AI. The most common adverse events (AE) of any grade were neutropenia and fatigue: 16 patients (76.2%) experienced neutropenia of grade ≥3, and 2 (9.5%) fatigue of grade ≥3. One patient was diagnosed with febrile neutropenia. Four patients are still on treatment at the time of this analysis; an updated analysis including PFS will be presented at the conference.
Conclusion: In heavily pretreated MBC, palbociclib and ET showed activity with disease response and durable disease stabilization even in women previously exposed to mTOR inhibitors. Toxicity profile in this heavily pretreated MBC population was comparable to that seen in pivotal trials.

PO76

PRELIMINARY DATA FROM A PROSPECTIVE NON-INTERVENTIONAL STUDY TO CHARACTERIZE REAL-WORLD TREATMENT PATTERNS AND OUTCOMES OF WOMEN WITH ER+/HER2-ADVANCED/METASTATIC BREAST CANCER

Nadia Harbeck[1], Michele De Laurentiis[2], Debanjali Mitra[3], Laurel Trantham[5], Roberto Di Virgilio[4], Sabino De Placido[6]
[1]Brustzentrum der Universitaet Muenchen (LMU), OB&GYN, Munich, Germany; [2]National Cancer Institute 'Fondazione Pascale', Breast Oncology, Naples, Italy; [3]Pfizer Inc, Outcomes and Evidence-Oncology, New York, USA; [4]Pfizer Italia, Market Access, Rome, Italy; [5]RTI Health Solutions, Health Economics, Research Triangle Park, USA; [6]University of Naples Federico II, Department of Clinical Oncology and Endocrinology and Rare Tumors Reference Center Campania Region, Naples, Italy

Background: ER+ HER2- breast cancer makes up majority of breast cancer cases in Europe (67%), but real world practice patterns, outcomes, and limitations of current therapies are poorly understood in this population. In light of an ongoing need for more effective treatment strategies, this study seeks to address this knowledge gap in a population of ER+ HER2- advanced or metastatic breast cancer (ABC/MBC) in Italy and Germany.
Methods: A prospective, non-interventional study collecting medical information together with periodic patient-reported outcomes is being conducted in women aged ≥18 years receiving first or second line treatment for ER+ HER2- ABC/MBC. Patients are being monitored for 2 years from enrollment. Data on baseline characteristics and treatment patterns for the first 99 (of an anticipated 500) study enrollees from 26 centers are reported.
Results: All 99 patients enrolled at the time of this interim analysis were Caucasian. The median age was 60.5 years and most patients were postmenopausal (76.8%). Nearly 95% of patients were metastatic and the remaining had locally advanced, unresectable disease. Visceral metastasis was present in 42.6% of patients. Nearly half of patients were initially diagnosed with early/limited regional disease (stage I – IIIA; 49%). For these patients, median duration of adjuvant therapy was 3 years and median time to diagnosis of advanced disease was 5.6 years. At study entry, 69 patients (69.7%) initiated first line of therapy for ABC/MBC. The majority of patients entering the study in first line received chemotherapy (53.6%). Across all patients, fulvestrant was the most commonly used regimen (22%). The most common first line regimen was paclitaxel + bevacizumab (23.2%), followed by letrozole (18.8%) and fulvestrant (17.4%). For the 30 patients initiating their second line of systemic therapy at study entry, the most commonly received treatment was fulvestrant (33.3%), followed by exemestane + everolimus (16.7%). At the most recent follow-up, 91.9% of patients were still receiving the same therapy regimen initiated at study entry.
Conclusions: Preliminary data suggest that chemotherapy is widely used for first line ABC/MBC, followed closely by endocrine therapies. These treatment patterns diverge from expectations based on current treatment guidelines, indicating potential unmet need with available therapies.

PO77

METRONOMIC CHEMOTHERAPY (mCHT) IN HER2-VE ADVANCED BREAST CANCER (ABC) PATIENTS (PTS): WHEN CARE OBJECTIVES MEET PATIENTS' NEED. PRELIMINARY RESULTS OF THE VICTOR-6 STUDY

Marina Elena Cazzaniga[2], Katia Cagossi[10], Maria Rosaria Valerio[17], Salvatore Russo[20], Virginia Casadei[9], Giovanni Scognamiglio[18], Luigi Cavanna[5], Davide Toniolo[11], Erico Maria Romani Deconciliis[1], Elisabetta Melegari[6], Lucia Stocchi[3], Vittorio Gebbia[7], Anna Maria Vandone[13], Maria Concetta Cursano[12], Graziella Pinotti[19], Rosalba Rossello[15], Salvatorico Ortu[4], Benedetta Pellegrino[16], Silvana Saracchini[14], Stefania Pedroli[2], Valter Torri[8], on behalf of the VICTOR Study Group
[1]ASL Asti, Oncology Dept., Asti, Italy; [2]ASST Monza, Research Unit Phase I trials & Medical Oncology, Monza, Italy; [3]AUSL Romagna, Oncology Dept., Cattolica, Italy; [4]Giovanni Paolo II Hospital, Medical Oncology Dept., Olbia, Italy; [5]Hospital of Piacenza, Oncology-Hematology Dept., Piacenza, Italy; [6]IRCCS IRTS, Research Dept., Meldona, Italy; [7]La Maddalena Clinic for Cancer, Medical Oncology Unit, Palermo, Italy; [8]Mario Negri Institute, Pharmacological Dept., Milan, Italy; [9]Ospedali Riuniti Marche Nord, Oncology Dept., Pesaro, Italy; [10]Ramazzini Hospital, Division of Medical Oncology, Carpi, Italy; [11]Rho Hospital, Medical Oncology Dept., Rho, Italy; [12]Rome University, Biomedical Campus, Rome, Italy; [13]S. Croce & Carle Teaching Hospital, Medical Oncology Dept., Cuneo, Italy; [14]S. Maria degli Angeli Hospital,

Oncology Dept., Pasiano di Pordenone, Italy; [15]S. Vincenzo Hospital, Oncology Dept., Taormina, Italy; [16]University Hospital of Parma, Medical Oncology Unit and Cancer Registry of Parma Province, Parma, Italy; [17]University of Palermo, Medical Oncology Section, Palermo, Italy; [18]Valduce Hospital, Oncology Dept., Como, Italy; [19]Varese Hospital, Oncology Dept., Varese, Italy; [20]Vittorio Emanuele Hospital, Oncology Dept., Gela, Italy

Background: mCHT is the minimum biologically effective dose of a chemotherapeutic agent, given at regular dosing regimen with no prolonged drug free interval, that leads to anti-tumor activity. Old regimens included Cyclophosphamide-Methotrexate (CM), whereas in the last years new regimens, such as Vinorelbine (VRL) and Capecitabine (CAPE)-based have been developed. Aim of this observational retrospective ongoing study is to describe the use of mCHT in ABC pts across 5 years and the clinical characteristics of the pts together with efficacy of old (CM-like) vs new (VRL/CAPE-based) metronomic regimens in terms of response and disease control.
Methods: We retrospectively identified from clinical records those HER2-ve ABC pts who have received any kind of mCHT in the years 2011–2015, alone, or in combination with a non-metronomic drug. Standard statistical approaches were used for describing the sample characteristics. Logistic and non proportional hazard analysis were used to identify factors associated with response, and time to treatment failure and survival, respectively. This preliminary analysis focuses on Response Rate (RR) and Disease Control Rate (DCR).
Results: From June 2011 to December 2015, 267 pts have been identified till now and 233 are fully evaluable. Median age at mCHT start was 67 years. 81% was HR+ and 33% had non-visceral metastatic disease. 22% of the pts received CM, 55% VRL-based and 23% mCAPE-based regimens. mCHT use increased over the time from 15.0% (2011) to 30% (2015). As 1st-line treatment, CM was administered in 27% of compared with more than 48% of patients receiving CAPE/VRL-based regimens.
Overall Response Rate (ORR) was 28% and Disease Control Rate (DCR) was 79%. Median duration of mCHT was 6.2 months. New generation metronomic regimens produced higher ORR in comparison to old ones (32% vs 13.5%), with similar duration of treatment (6.4 vs 5.4 months, respectively).
Conclusions: The use of mCHT in the treatment of HER2-ve ABC pts has deeply changed across the last 5 years, being new generation regimens used in earlier lines of treatment, producing interesting results in terms of objective response and disease control. Toxciity data are under evaluation.

PO78

RANDOMIZED PROSPECTIVE STUDY: PACLITAXEL EVERY-3-WEEKLY PACLITAXEL AND VERSUS WEEKLY VINORELBINE IN METASTATIC BREAST CANCER

Lika Katselashvili[4], Ivane Kiladze[4], Margarita Katcharava[4], Natia Jokhadze[4], Tamar Melkadze[4], Mariam Zhvania[1], Nino Sharikadze[3], Amiran Matitashvili[2], Fridon Todua[4]
[1]Conssillium-, 'Medulla', Oncology, Tbilisi, Georgia; [2]Mardaleishvili Medical Centre, Oncology, Tbilisi, Georgia; [3]MeiclubGeorgia, Oncology, Tbilisi, Georgia; [4]Research Institute of Clinical Medicine, Oncology, Tbilisi, Georgia

Background: Single-agent chemotherapy (CT) is widely used in the management of HER2-negative breast cancer patients (pts). As both Paclitaxel (P) and Vinorelbine (V) have demonstrated efficacy in the treatment of Metastatic Breast Cancer (MBC), they are recommended among the standard available CT agents for MBC patients. This study compares the efficacy and safety profile of most frequently used three treatment regimens: Paclitaxel every-3-weeks (3-w-P) versus weekly Paclitaxel(w-P) and versus weekly Vinorelbine (w-V) in MBC. Primary objective: Time to progression (TTP). Secondary objectives: Evaluation of safety profiles, clinical benefit and response rate (RR) of all arms.
Methods: In this open-label randomized prospective study, pts were randomized (2:2:1) to receive either: Intravenously 3-w-P every 21 days, w-P 80 mg/m²/week (day 1, 8, 15) every 28 days or w-V 25 mg/m²/week (day 1, 8, 15) every 28 days. Main eligibility criteria: Age ≥18 years, documented metastatic disease previously untreated by CT for metastatic setting, ER/PR positive and HER2-negative disease, or triple negative disease. ECOG ≤ 2.
Results: From April 2014 to April 2015, 95 pts were included. 39 received 3-w-P; 38 received w-P and 18 received w-V per protocol. Median age was 58 years (range 38-79), median duration of treatment 11.5 weeks (range 9-24). The clinical benefit rate (defined as complete response, partial response plus stable disease) was observed in 82.8% vs 96.3% vs 100% respectively for 3-W-P vs W-P vs W-V arms. Efficacy: With a median follow up of 24 months (m), median time to progression (primary endpoint) was 10.3m, 9.8m and 9.6m in 3-w-P arm, w-P and in w-V arm respectively ($p = 0.006$). The clinical benefit rate was observed in 82.8% vs. 96.3% vs. 100% respectively for 3-w-P vs. w-P vs. w-V arms. Safety: W-V was much better tolerated with fewer G3/4 toxicity events (n = 2) than w-P and 3-w-P (n = 23 and 16). Neuropathy G3/4 was mostly reported in 3-w-P and w-P arm than in V arm (75% vs. 69% vs. 17%). G3/4 alopecia was reported in both P arms (94%) when in V arm G3 alopecia was only in 6% of pts.
Conclusion: Weekly Paclitaxel appeared as effective as every-3-weekly regimen and weekly Vinorelbine, however neurotoxicity is a treatment-limiting toxicity for both Paclitaxel regimen. Vinorelbine had fewer significant Grade 3/4 toxicities than both Paclitaxel arms and had better RR. Larger randomised studies are needed to determine the efficacy and overall survival of Paclitaxel versus Vinorelbine

PO79

REAL WORLD PRESCRIPTION PATTERNS IN METASTATIC HR+ BREAST CANCER. ANALYSIS FROM INSTITUTO NACIONAL DE CANCEROLOGIA, MEXICO CITY

Claudia Arce Salinas, Maria Tereza Nieto-Coronel, Ariana Tabares, Leticia Mendoza-Galindo, Rebeca Ramirez-Morales, Nancy Reynoso-Noveron, Jose Luis Aguilar-Ponce, Fernando Lara-Medina
Instituto Nacional de Cancerologia, Medical Oncology, Mexico City, Mexico

Background: Metastatic breast cancer represented 13% of all new cases at our Institution. Besides endocrine therapy is the treatment choice for hormonosensitive (HR) tumors according international guidelines, in our center most patients are treated with chemotherapy, main reasons are high disease burden, younger age, and drugs availability. The aim of this review is to analyze the prescription patterns in metastatic setting.
Methods: Retrospective analysis from our local database; 184 consecutive cases were selected from 2007–2011. We included patients with the novo-metastatic disease, ER+ or PR+ and/or HER2+ or –. Statistical analysis was done with SPSS v.20. Local IRB approved the review.
Results: Median age was 49.49 years-old (25.9–86.9), ER/PR+, HER2 negative was presented in 76.6% and ER/PR/HER2 positive in 23.4%. Median lines of palliative treatment were 3 (0–11). 50% received 1–3 treatment lines and 50% received more than four treatment regimens. Six patients (3.3%) were not candidate to any systemic treatment, received palliative care. Chemotherapy as first

line regimen was given in 90.2% of the cases and only 6.5 received endocrine therapy. Polychemotherapy was given in 82.1% and the main drug was doxorubicin 78.8%, independently of the HER2 expression. Median follow-up was 28 months (0–124), median overall survival (OS) for group was 18.6%, and there was no difference in OS according HER2 expression log-rank 0.291. OS was significantly different according treatment choice, for those patients treated with endocrine therapy OS was 38.5% in comparison with 16% for patients treated with anthracyclines p = 0.000

Conclusions: These results reinforce the importance of endocrine treatment as first line therapy in metastatic HR positive breast cancer patients even though only 6.5% of the entire cohort was treated with endocrine therapy as first line, the benefit in OS was significant. Bigger efforts should be done in our Institution to changing this pattern. This report has limitations one of them is to confirm the benefit of chemotherapy in patients with visceral crisis or high burden disease.

PO80

EFFICACY OF FIRST LINE REGIMENS IN METASTATIC BREAST CANCER PATIENTS. REAL WORLD EVIDENCE FROM INSTITUTO NACIONAL DE CANCEROLOGIA, MEXICO CITY

Maria Tereza Nieto-Coronel, Claudia Arce Salinas, Ariana Tabares, Jose Luis Aguilar-Ponce
National Institute of Cancer, Medical Oncology Dept., Mexico City, Mexico

Background: For several years anthracyclines has been the cornerstone treatment in breast cancer, however since 2005, in USA, its use has been declined. Currently the available chemotherapy drugs are so vast that the benefit of anthracyclines as first line should be evaluated. The aim of this study is to evaluate the efficacy of anthracyclines in terms of time to progression (TP) an it's impact on overall survival (OS).

Methods: Retrospective analysis from our local database; 302 consecutive cases were selected from 2007–2011. We included patients with the novo-metastatic disease. Chemothrapy regimens were grouped in anthracyclines (doxorubicin monotherapy or AC or FAC), taxanes (monotherapy or in combination mostly with platinum salts), antimetabolites (monotherapy or combination), endocrine therapy (ET) and other regimen. Statistical analysis was done with SPSS v.20. Local IRB approved the review.

Results: Median age was 50.78 years-old (20.9–86.8). Breast cancer subtypes were HR+ HER2–46.5%, triple negative 24.8%, HER2+/HR+ or – 27.7%. Median lines of palliative treatment were 3 (0–11). 15 patients (5%) were not candidate to any systemic treatment, received palliative care. Polychemotherapy was given in 81.5%, mainly AC and FAC combinations. The median TP for anthracyclines was 3.0 mo (0–15), for taxanes 4.5 mo (1–11), antimetabolites 6.5 (2–22), ET 11.5 mo (2–120) and other 1 mo (0–4). OS was 14.3%, 14.3%, 12.5%, 42.9% and 0% respectively. Multivariate cox analysis to evaluate the type of chemotherapy in OS did not show any difference among the different subtypes, only for the HR+ cohort, whom has more benefit with ET OR: 13 (CI 95% 11.53–14.46 p = 0.000).

Conclusions: This analysis confirms that the best treatment for HR+ metastatic breast cancer is endocrine therapy, with improvement in overall survival. By the other hand, anthracyclines use should be reconsidered as a first line, since other drugs become available and are associated the same clinical outcome and less toxicity. Prospective data should be analyzed to clarify the best sequence for the anthracyclines.

PO81

RIBOCICLIB AND ENDOCRINE THERAPY (ET) IN HORMONE RECEPTOR-POSITIVE (HR+), HUMAN EPIDERMAL GROWTH FACTOR RECEPTOR 2-NEGATIVE (HER-2) BREAST CANCER: THE MONALEESA CLINICAL TRIALS PROGRAM

Mario Campone[1], Debu Tripathy[5], Stephen Chia[6], Ivan Diaz-Padilla[3], Karen R. Lorenc[4], Michelle Miller[4], Caroline Germa[4], Pierfranco Conte[2]
[1]Institut de Cancérologie de l'Ouest, Centre Rene Gauducheau, Saint-Herblain, France; [2]Istituto Oncologico Veneto, University of Padua, Oncological and Gastroenterological Surgery, Padua, Italy; [3]Novartis Pharma AG, Oncology, Basel, Switzerland; [4]Novartis Pharmaceuticals, Oncology, East Hanover, USA; [5]The University of Texas MD Anderson Cancer Center, Department of Breast Medical Oncology, Houston, USA; [6]University of British Columbia, Breast Tumour Group, Vancouver, Canada

Background: A hallmark of HR+ breast cancer is the dysregulation of the cell cycle regulatory network, including the cyclin D–CDK4/6–Rb–INK4 pathway. Ribociclib (LEE011), is an orally bioavailable, selective inhibitor of CDK4/6. The recommended ribociclib dosing is 600 mg/day (3-weeks-on/1-week-off) taken with or without food. Ongoing studies in the MONALEESA program include ribociclib in combination with other ET agents and in other patient populations.

Methods: We reviewed ongoing phase 3 clinical trials in the MONALEESA program. In MONALEESA-2 (NCT01958021), 668 postmenopausal women with no prior therapy for advanced disease were randomized to receive ribociclib + letrozole (n = 334) or placebo + letrozole (n = 334). In MONALEESA-7 (NCT02278120), 672 premenopausal women with no prior therapy for advanced disease were randomized to receive either ribociclib + endocrine therapy (ET) (tamoxifen or non-steroidal aromatase inhibitor) + ovarian functional suppression (OFS) with goserelin or placebo + ET + OFS with goserelin. In MONALEESA-3 (NCT02422615), 727 men and postmenopausal women with ≤1 line of ET for advanced disease were randomized to receive either ribociclib + fulvestrant or placebo + fulvestrant. Enrollment in all trials required an ECOG performance status of 0 or 1, adequate bone marrow and organ function, and no history of/current cardiac disease (baseline QTcF ≤450 msec required).

Results: An updated analysis of MONALEESA-2 (median follow-up 26.4 months) demonstrated continued treatment benefit with ribociclib + letrozole vs placebo + letrozole, with median PFS prolonged by 9.3 months (25.3 months ribociclib + letrozole vs 16.0 months placebo + letrozole; HR = 0.568; 95% CI, 0.457–0.704; P = 9.63 × 10–8). Safety data were broadly consistent across subgroups and the full population. Common grade 3/4 adverse events (≥20% of pts; ribociclib vs placebo arm) included neutropenia (59% vs 1%) and leukopenia (21% vs 1%). OS data remain immature. Enrollment has completed for both MONALEESA-7 and MONALEESA-3. MONALEESA-7 will examine ribociclib + ET + OFS as an initial endocrine-based therapy for advanced breast cancer and is the only phase 3 clinical trial dedicated to pre- or perimenopausal women. MONALEESA-3 will examine ribociclib + fulvestrant in men and postmenopausal women as a first-line therapy or after progression on 1 line of ET for advanced disease.

Conclusions: Results from MONALEESA-2 demonstrate that ribociclib in combination with letrozole significantly prolongs progression-free survival versus letrozole alone as first-line therapy for HR+, HER2– advanced breast cancer. Results of the MONALEESA-3 and MONALEESA-7 trials are eagerly awaited to provide data in an expanded patient population and in combination with other ET agents.

PO82

A PHASE II STUDY OF METRONOMIC DAILY ORAL VINORELBINE AS FIRST-LINE CHEMOTHERAPY IN ADVANCED/METASTATIC HORMONE RECEPTOR POSITIVE (HR+)/HUMAN EPIDERMAL GROWTH FACTOR RECEPTOR 2 NEGATIVE (HER2-) BREAST CANCER RESISTANT TO ENDOCRINE THERAPY: VINOMETRO

Christoph Thomssen[3], Thomas Decker[5], Tanja Fehm[1], Stefan Fuxius[4], Nadia Harbeck[9], Ingolf Juhasz-Böss[6], Volker Möbus[2], Martina Seehase[7], Lukas Schollenberger[8], Christian Ruckes[8], Marcus Schmidt[7]
[1]Heinrich Heine University, Dept. of Gynecology and Obstetrics, Dusseldorf, Germany; [2]Hospital Frankfurt Höchst, Dept. of Gynecology and Obstetrics, Frankfurt, Germany; [3]Martin Luther University Halle-Wittenburg, Dept. of Gynecology, Halle, Germany; [4]Medical Office of Oncology Heidelberg, Oncology Dept., Heidelberg, Germany; [5]Medical Office of Oncology Ravensburg, Oncology Dept., Ravensburg, Germany; [6]Saarland University Hospital, Dept. of Gynecology and Obstetrics, Homburg/Saar, Germany; [7]University Medical Center Mainz, Dept. of Gynecology and Obstetrics, Mainz, Germany; [8]University Medical Center Mainz, Interdisciplinary Center for Clinical Trials (IZKS) Dept., Mainz, Germany; [9]University of Munich (LMU), Breast Center, Dept. of Gynecology and Obstetrics, Munich, Germany

Background: Chemotherapy (CTx) is a cornerstone in HR+/HER2- advanced/metastatic breast cancer (a/mBC) after failure of endocrine treatment. In this indication, vinorelbine (VRL) is a well-established cytotoxic drug. There is a high medical need for new options that prolong the time between endocrine failure and intensive CTx, which is commonly associated with impaired quality of life and serious side effects. Metronomic CTx was shown to induce disease control in a/mBC with a favorable safety profile. This innovative approach involving continuous daily dosing of oral VRL, which could provide anti-angiogenic and immune-modulatory properties, has not been investigated so far in this indication.
Trial Design: VinoMetro is an open-label, single-arm, phase II study (Simon two-stage minimax) of metronomic daily oral VRL (30 mg/day) as first-line CTx. The study involves strict safety monitoring with an initial safety run-in. It is accompanied by a steering committee and supervised by an independent monitoring board. The main objectives are to estimate efficacy in terms of clinical benefit rate after 24 weeks of treatment (primary endpoint) and the progression-free survival, amongst others, as well as the assessment of safety and quality of life. Patients with HR+/HER2- a/mBC having failed or being no candidate for endocrine therapy (targeted combinations allowed) and being naïve to palliative CTx are eligible, if they exhibit ECOG 0-1. The main exclusion criteria are prior vinca-alkaloids, aggressive disease requiring combination CTx and CNS involvement.
Until 2017-05-31, 7 patients were enrolled. It is planned to include 45 (39 evaluable) patients at 8 German sites until 09/2018. Scheduled completion date is 09/2019. Two interim analyses are planned (first analysis: Safety evaluation based on the 10 initial patients with predefined stopping rules). Depending on recruitment, it is planned to include the interim safety data in the congress presentation.
VinoMetro is an investigator initiated trial (NCT03007992) sponsored by the University Medical Centre of Johannes Gutenberg-University Mainz, Germany, and supported by an unrestricted grant provided by Pierre Fabre Pharma GmbH (Freiburg, Germany).

PO83

PROGNOSTIC FACTORS IN METASTATIC BREAST CANCER PATIENTS TO BRAIN: RETROSPECTIVE ANALYSIS

Ahmed Gaballah[1], Ramy Ghali[1], Essam Saleh[1], Aamer Arif[2]
[1]Ain Shams University Hospital, Dept. of Clinical Oncology, Cairo, Egypt; [2]Ramadi General Hospital, Medical Oncology Dept., Anbar, Iraq

Background: Breast cancer is the leading cause of cancer-related death in women. 15% of breast cancer patients will develop brain metastasis. Its incidence differs according to many factors like molecular subtypes and burden and duration of systemic disease. Triple negative disease (TND) is aggressive subtype with lifetime incidence of brain metastasis 25–46%. Survival of patients with brain metastasis is generally poor and affected by molecular subtypes, patient's performance, number and burden of visceral metastasis and resectability of brain lesion. This retrospective study aimed at evaluating the prognostic factors of breast cancer patients with brain metastasis.
Methods: We analyzed breast cancer patients' files treated at our department between January 2010 and December 2014. From 2095 files retrieved, 32 had brain metastasis. The clinic-epidemiological, pathological, treatment received and survival data were extracted and analyzed.
Results: Median age of brain metastasis diagnosis was 49.5 (range 27–69). Median time to brain metastasis since diagnosis of cancer was 16 months (95% CI: 13.228–18.772). Postmenopausal women were 59% and 56% had good performance status (ECOG 1-2). The majority of patients had grade II disease (65.6%) and ductal carcinoma (81.25%). Hormonal receptor (HR) positive/HER2-neu negative represented 25%, TND 25% and HER2-neu positive 50%. Signs of increase intracranial tension were the presenting sign in 68.7% of patients. Seven patients had single lesion, 22 had multiple and 3 patients had lepto-meningeal metastasis. Three patients underwent brain metastatectomy. Median PFS was 4.5 months (95% CI: 3.576–5.424); and was significantly higher among metastatectomy patients, 31 versus 4.5 months ($p = 0.023$) and HR positive patients 6.5 versus 3–4 months in other subgroups ($p = 0.007$). Median overall survival was 6.5 months (95% CI: 4.228–9.772) and was significantly higher with ECOG 1, HR-positive, low number of metastatic sites (1 or 2 versus >2) and brain metastatectomy with p values of 0.037, 0.045, <0.001 and 0.007 respectively.
Conclusions: Brain metastasis is an indicator of short survival which is influenced by tumor subtype, performance status, burden of systemic disease and ability to perform metastatectomy.

PO84

NAB-PACLITAXEL (NAB-P) IN HER2-VE ADVANCED BREAST CANCER (ABC) PATIENTS (PTS): FOCUS ON LUMINAL CANCERS. RESULTS FROM GIM13-AMBRA STUDY

Marina Elena Cazzaniga, Giorgio Mustacchi, Emilio Bria, Giancarlo Bisagni, Laura Biganzoli, Paolo Pronzato, Sabino De Placido, Emanuela Romagnoli, Filippo Montemurro, Paolo Marchetti, Michelino De Laurentis, Ferdinando Riccardi, Anna Turletti, Andrea Michelotti, Clara Natoli, Lorenzo Livi, Lucia Del Mastro, Michela Donadio, Ornella Garrone, Monica Giordano, on behalf of GIM 13 – AMBRA Study Group
ASST Monza, Research Unit Phase I trials & Medical Oncology, Monza, Italy

Background: Two randomized studies demonstrated that Nab-P produces a significantly higher overall response rate (ORR), longer Time to Progression (TTP), and greater overall survival (OS) in ABC

pts treated with second-line or greater therapy compared with patients who receive conventional Paclitaxel. However, few data are available in the real-life setting, especially for the weekly schedule (wNab-P).

Patients and Methods: AMBRA is a longitudinal cohort study, aiming to describe the choice of first and subsequent lines of treatment in HER2-ve ABC pts receiving at least one CHT (SABCS 2016, P5-15-07 & P5-14-09) in the years 2012–2015. For the present analysis, we focused on the use of Nab-P in Luminal tumours, describing efficacy results according to pts' characteristics.

Results: So far, 791/1500 pts have been registered into the study, 107 (13.5%) received Nab-P in any line of treatment and 88 (82.2%) were Luminal tumours. Median age was 56 years.

Seventeen pts (19.3%) received Nab-P as 1st line therapy, 38 (43.2%) as 2nd-line, the remaining as 3rd-line or greater. Most pts (40, 45.5%) received the every 3 weeks (Q21) schedule, whereas 27 pts (30.7%) were treated with the weekly (wNab-P) schedule (days 1,8,15 Q28) at different doses: 100 mg/mq: 9 (33.3%), 125 mg/mq,: 13 (48.1%); 150 mg/mq: 3 (11.1%). The remaining received different schedules or doses. Median number of cycles received was 5 (1-17) and median duration of treatment was 3.5 months in the whole population. No difference has been observed in terms of number of cycles or duration of treatment according to the schedule.

Conclusion: Our results are similar to those obtained in a recent large real-life study, confirming that Nab-P is one promising option also for pts with Luminal tumours.

PO85

CAPECITABINE AND VINORELBINE COMBINATION MORE EFFECTIVE AS THE FIRST LINE TREATMENT OF ADVANCED ER POSITIVE BREAST CANCER

Loay Kassem[2], Mohamed Ismail[1], Hamdy A. Azim[2,1]
[1]Cairo Oncology Center, Clinical Oncology Department, Cairo, Egypt; [2]Kasr El Aini, Dept. of Clinical Oncology and Nuclear Medicine, Cairo, Egypt

Background: Capecitabine and Vinorelbine (XN) is a widely used combination chemotherapy regimen in metastatic breast cancer. Here we report the results of using XN in a cohort of advanced breast cancer in the first line setting in comparison to other treatment options used.

Methods: Women with histologically-proven metastatic or locally recurrent breast cancer (irresectable) who started first line therapy at Cairo Oncology Center between January 2006 and December 2010 were included. Patients received either XN (52 patients): Capecitabine 1750 mg/m2/d (D1-14) + Vinorelbine 25 mg/m2 (D1&8) in a 21day cycle or received one of the comparator regimens (79 patients). Comparator regimen was either single agent chemotherapy (Taxane or anthracyclin) or a combination chemotherapy. Endpoints were progression free survival (PFS) and objective response rate (ORR).

Results: Between 2006 and 2010, 131 eligible women were identified. At the time of analysis, the median follow up period for the whole cohort was 38 months (Range: 5.4–112 months). Median age at diagnosis was 49 years (range: 25–70 years). The majority (88.1%) had relapsed disease while 11.9% presented with metastatic cancer. Most of the patients (84%) had invasive ductal carcinomas. Estrogen receptors (ER) were expressed in 75.5% and HER2 was over-expressed in 25.3% of the cases. Both treatment arms were balanced across the different clinico-pathological criteria.

Patients who received XN regimen had higher ORR (CR + PR) compared with other regimens. The ORR in the XN group was 32/52 (61.5%) versus 16/79 (20.3%) in the comparator arm ($p < 0.001$). CBR was significantly higher in the XN arm with 38/52 (73%) versus the comparator arm 25/79 (31.6%), $p < 0.001$.

Excluding those who received single agent chemotherapy, XN had also higher ORR with 32/52 (61.5%) than other first line combination chemotherapy regimens with 14/46 (30.4%) ($p = 0.006$). Similarly, XN had higher CBR with 38/52 (73%) versus 20/46 (43.5%) in the other combination chemotherapy regimens ($p = 0.036$).

By Kaplan Meier test, XN had superior 12 months PFS than the comparator regimens with 40.1% versus 17.4% in the comparator arm ($p = 0.041$).

Surprisingly, such superiority was observed only in the ER positive (12 month PFS 43.5% versus 14% respectively, $p = 0.013$) while in ER negative patients XN did worse than other chemotherapy comparator (12 months PFS 0% versus 23.8% respectively, $p = 0.010$).

Conclusion: Capecitabine/vinorelbine combination provided superior results than other chemotherapy regimens in the first line treatment of advanced breast cancer. Such superiority was restricted to ER positive patients, a finding that should be further investigated.

PO86

EFFICACY AND TOXICITY OF ERIBULIN IN REAL-LIFE NON-SELECTED ADVANCED BREAST CANCER PATIENTS

Anne Sofie Brems-Eskildsen[3], Kristina Bak Kristoffersen[3], Soeren Linnet[1], Tamás Lörincz[2], Sven Tyge Langkjer[3]
[1]Hospital of Herning, Oncology, Herning, Denmark; [2]University Hospital of Aalborg, Oncology, Aalborg, Denmark; [3]University Hospital of Aarhus, Oncology Dept., Aarhus, Denmark

Background: Eribulin is an antineoplastic inhibitor of the microtubule dynamics approved in 2010 by FDA. Eribulin has a proven survival benefit and tolerable toxicity in this patient group in previous studies. We aimed to investigate whether these results, primarily from the EMBRACE study (Cortes et al 2011), could be confirmed in our population of non-selected patients with metastatic breast cancer.

Methods: We identified all patients who began treatment with eribulin from 2012–2015 in three different Departments of Oncology in Denmark. All patients had disseminated or locally advanced mamma cancer. We then performed a systematic review of patient records, laboratory findings, pathology and radiological results. The non-haematological side effects are partly self-reported and partly registered from files according to CTCAE 4. Statistical analysis was performed using SPSS 20 and included Kaplan Meier, log rank testing and cox regression models.

Results: A total of 130 women with metastatic breast cancer were identified. The mean age was 58 years (range 30–75 years). Estrogen Receptor positive status was found in 72% of patients, and 18% of patients had triple-negative disease. All women were heavily pretreated with a median 3 prior regimens of chemotherapy. Prior regimens included both anthracycline and taxanes in 73% of cases. The median number of eribulin series given was 3 (range 1–20). Progression-free survival (PFS) in our material was median 3,0 month (95% Confidence Interval (CI):1,87–4,0) and the median overall survival (OS) was 8,1 months (95% CI: 6,7–9,6). We found a significantly longer OS of 11 month vs. 5,5 month ($p = 0,000$) in patients with ECOG performance status (PS) of 0–1 compared to those in PS 2–3. Also, a significant difference in both OS (6,7 vs 9,0 month, $p = 0,003$) and PFS (2,0 vs 4,1 month, $p = 0,00$) was found regarding triple-negative status, with triple-negative disease as a predictor of worse outcome. We found grade 3–5 hematological toxicity in 19% of patients, and 16% was admitted to hospital with suspected treatment related

complications. The non-hematological side effects most commonly reported were fatigue, neuropatia, muscle/joint affection, and nausea/loss of appetite.
Conclusions: We confirmed that treatment with eribulin is relatively well tolerated. The baseline characteristics of our population are comparable to those of EMBRACE with regard to age, receptor status and pretreatment, however our patients were more often in higher PS group. This might explain why our results are less impressive, as we see a significantly higher OS in the subgroup of patients with PS 0-1. The performance status of the patients seems important to consider before starting the treatment as eribulin can be rather toxic in some patients.

PO87

ALL ORAL COMBINATION OF VINORELBINE AND CAPECITABILE AS A FIRST LINE TREATMENT IN PATIENTS (PTS) WITH METASTATIC BREAST CANCER (MBC)

Samir Shehata, Marwa Khalaf
Assiut University, Medical Oncology Dept., Assiut, Egypt

Background: Oral chemotherapy (OCT) represents a step forward in the management of MBC. It has gained an increased importance over the past years. In Egypt, cancer pts living in rural areas are often hours away from the closest treatment center. For these pts, OCT offers a convenient option and seems to be preferred. In first line MBC, Oral Vinorelbine (OV) with Capecitabine (C) is an active full oral combination with response rates (RR) ranging from 48 to 70% in published data. Based on that, we evaluated efficacy and safety of OV-C in first line HER2 negative MBC pts
Methods: 26 patients with no previous treatment for their advanced disease were enrolled. All pts had measurable disease relapsing after (neo) adjuvant AC±taxane based treatment, WHO PS ≤ 2. Pts were administered OV 60 mg/m2 D1, D8 for the first cycle and thereafter 80 mg/m2 D1, D8 in combination with (C) 825 mg/m2 twice daily from D1 to D14, every 21 days for 6 cycles. Primary endpoint (EP) was Disease Progression Rate (DPR) (%); secondary EPs were RR, 3 year survival (YS) and safety.
Results: All 26 pts were included in the analysis. Median age was 53.2 years (range 38.8–77.1); median WHO PS 1 (range 0–2). 58% of the pts were post-menopausal. All pts were treated with AC-based therapy in the (neo) adjuvant setting and 61.5% with an AC + taxane based treatment. 21 (81%) pts had 2 or more metastatic sites; liver (39%), bone (31%) and lung (31%) being the most frequent sites. The total number of cycles delivered was 102 with a median number of cycles/patient of 4 (range: 1–6). The RR was 54% (95% CI, 34.7–73%), including 1 complete (4%) and 13 partial responses (50%). 3 YS was 64.3%. In pts who received 6 cycles of treatment, DPR was 40%. G3-4 neutropenia was noted in 2 (8%) pts. G3 hand-foot syndrome and neuropathy were seen in 1 (4%) pt each, while 2 (8%) pts experienced Gr3 nausea-vomiting. Dose escalation of OV was possible in 83% of the pts.
Conclusion: In addition to all the benefits of OCT including convenience and prolonged infusion-free survival, our results show that OV-C is also an effective and well tolerated regimen, making it an attractive option for our pts. OCT appears to be a valid alternative to I.V treatment especially for pts and countries where accessibility to treatment centers remains an issue.

PO88

EFFICACY OF CAPECITABILE MONOTHERAPY AS TREATMENT FOR REAL LIFE PATIENTS WITH HER2-NEGATIVE MESTASTATIC BREAST CANCER

Maja Bendtsen Sharma, Anne Sofie Brems-Eskildsen, Sven Tyge Langkjer
Aarhus University Hospital, Department of Oncology, Aarhus, Denmark

Background: Capecitabine is an option in the treatment of metastatic breast cancer. Because of the relatively mild side effects, it is often prescribed to fragile patients otherwise considered too frail to receive aggressive chemotherapy. Another indication is resistance towards 1st and 2nd line chemotherapy or intolerable side effects. The purpose of this study was to evaluate efficacy of capecitabine in both the younger and the elderly population, stratified on ER receptors, metastatic sites and 1st, 2nd or 3rd line chemotherapy.
Methods: In this single center trial, 206 women diagnosed with HER-2 negative metastatic breast cancer, either primary metastatic or recurrent disease, were included. They received palliative intended capecitabine between 2010 and 2016 in a single center. The patients were treated on a 3-weekly schedule, with a dose of 2000 mg/m2 daily from day 1 to 14 followed by one week off. Intolerable side effects led to dose reduction. They were treated until progression or unacceptable toxicity. Data was retrospectively collected from patient's files. The primary endpoint was clinical benefit rate (CBR), defined as complete and partial responders as well as patients with stable disease ≥ 6 months. Secondary endpoint was progression free survival (PFS).
Results: Median age was 64 (Range 36–90). 76% of the patients had ER positive disease and 22% had ER negative disease. 44% had liver metastases, and 29% were ≥ 70 years of age. Total CBR was 40%, ranging from 38% for 3rd line treatment and 44% for 1st line treatment. Patients with ER-positive disease showed the highest response rates with CBR of 53% vs. 33% for patients with ER negative disease. The treatment was equally efficient in patients with liver metastases (CBR 42%) and in patients ≥ 70 years of age (CBR 40%).
Overall median PFS was 6,2 months (CI 5,0–7,4). PFS was significantly different in regard to the ER status (6,5-month vs 3,9 month, p = 0,045), treatment line 1–3 (6,6 vs 6,2 vs 4,2 month, p = 0,021) and patient with disease limited to the bones (12 vs 5,9 month, p = 0,044). We found no difference in PFS when stratified for patients ≥ 70 years of age or liver metastases. Among the ER positive patients receiving 1st line treatment we found a significant better median PFS of 10 months (CI 7,4–12,6) compared to only 2,9 months (CI 1,8–3,9) among the ER negative patients (p = 0,035).
Conclusion: Treatment with capecitabine in patients with metastatic breast cancer is efficient and relevant. In this study, the overall clinical benefit was around 40% and the response is best in ER positive patients receiving first line chemotherapy. The mild toxicity profile makes this agent tolerable for elderly patients (>70 years) with a clinically meaningful outcome.

PR89

EFFICACY AND SAFETY OF ERIBULIN IN PATIENTS WITH HER2-NEGATIVE METASTATIC BREAST CANCER: REAL LIFE EXPERIENCE

Larisa Zhilyaeva
Kursk Oncology Center, Chemotherapy Department, Kursk, Russian Federation

Background: We sought to describe treatment patterns of eribulin and clinical outcomes associated with early and late use among

anthracycline and taxane-pretreated patients with advanced breast cancer treated in community oncology practices across the Russian Federation.

Methods: Patients treated with eribulin anytime between Jan 1, 2014 and Jan 1, 2017 with a diagnosis of MBC were identified by providers within the Russia Oncology Research Center. Providers reviewed the health records and abstracted selected data points into an electronic case report form for each eligible patient.

Results: A total 143 MBC patients were considered by 22 providers. A median age was 53 (44–58) yrs and ECOG status 0–1 were assessed. 66 (46%) pts were ER/PR-positive, 46 (32%) – triple-negative, 31 (22%) – HER2-positive (in combination with trastuzumab). Most of the pts (78%) had visceral mts (9 pts (6,3%) had a brain mts), a median number metastatic disease regions was 2 (1–3). Eribulin was administered as the 1st, 2nd and 3rd lines of MBC treatment to 62 (55,5%) pts, the 4th and later lines – to 50 (44,5%) pts in HER2-negative group (n = 112). ORR and SD was 78% among HR-positive patients and 57% among TNMBC patients. Median PFS was 4,74 months (95% CI 2,61–8,01) among HR-positive and 3,0 months (95% CI 1,91–5,87) among TNMBC (p = 0,027). 28 pts (19,5%) treated with eribulin 8 months and longer (1 pt 40 cycles and continuous treatment).

Tolerability of the drug was good: Withdrawn due to toxicity had 3,5%, dose reduction – 16% of pts. The most common type of toxicity was hematological with neutropenia Gr I-II in 30 (21%) of pts and Gr III-IV – in 18 (12,6%) of pts. Peripheral neuropathy Gr II was observed in 11 (8%) of pts.

Conclusions: This is the real-life description of clinical outcomes, for patients initiating eribulin therapy for MBC throughout the Russian Federation. Our experience with eribulin in MBC patients confirms eribulin efficacy and safety in HER2-negative patients, the most effectiveness was in HR-positive group.

PO90

EFFICACY AND SAFETY OF ERIBULIN IN COMBINATION WITH TRASTUZIMAB IN HER2-POSITIVE METASTATIC BREAST CANCER PATIENTS: REAL LIFE EXPERIENCE

Elena Igorevna Kovalenko[1], Ludmila Manzyuk[1], Vera Andreevna Gorbunova[1], Larisa Vladimirovna Bolotina[2], Larisa Zhilyaeva[3], Dmitry Mikhailovich Ponomarenko[4], Elena Vladimirovna Karabina[5], Guzel Zinurovna Mukhametshina[6], Alfia Irekovna Khasanova[6], Irina Vladimirovna Evstigneeva[7]

[1]N.N. Blokhin Russian Cancer Research Center of the Ministry of Health of the Russian Federation, Moscow, Russian Federation; *[2]P.A. Herzen Moscow Research Institute of Oncology of National Medical Research Radiological Centre of Ministry of Health of the Russian Federation, Moscow, Russian Federation; [3]Kursk Regional Clinical Oncology Center, Kurks, Russian Federation; [4]Irkutsk Regional Clinical Oncology Center, Irkutsk, Russian Federation; [5]Tula Regional Clinical Oncology Center,Tula, Russian Federation; [6]Tatarstan Regional Clinical Oncology Center, Kazan, Russian Federation; [7]Penza Regional Clinical Oncology Center, Penza, Russian Federation*

Background: We sought to describe treatment patterns of eribulin and clinical outcomes of metastatic HER2-positive breast cancer treated with eribulin plus trastuzumab combination in community oncology practices across the Russian Federation.

Methods: Patients treated with eribulin anytime between Jan1, 2014 and Jan 1, 2017 with a diagnosis of MBC was identified by providers within the Russia Oncology Research Center. Providers reviewed the health records and abstracted selected data points into an electronic case report form for each eligible patient.

Results: A total 143 MBC patients were considered by 22 providers. 31 (22%) pts were HER2-positive and received eribulin in combination with trastuzumab. Median age was 50 (40–57) yrs and ECOG status 0–1. 74% pts had visceral metastases. Eribulin was administered as 2nd line to 8 (25,8%) pts, 3rd line to 9 (29%) pts, 4th line and later to 14 (45,2%). ORR was 29%, SD was 48,4%, CBR (ORR + SD ≥ 6 months) – 55%. Median PFS was 5,0 months (95% CI 2,6–8,2).

The combination was well tolerated: Dose reduction required 16,2% pts, withdrawal due to toxicity – 3,2%. The most common type of toxicity was hematological with neutropenia Gr I-II in 5 (16,2%) pts and Gr III-IV – in 4 (12,9%) pts. Peripheral neuropathy Gr II was observed in 3 (9,7%) pts. No cardiotoxicity was detected.

Conclusions: This is the first real-life description of clinical outcomes for patients initiating eribulin plus trastuzumab therapy for HER2-positive MBC throughout the Russian Federation. Our experience with eribulin in MBC patients confirms it efficacy and safety of this combination.

PO91

RELAPSE AND METASTATIC SPREAD PATTERNS IN PATIENTS WITH HER2/NEU POSITIVE BREAST CANCER WHO UNDERWENT TARGETED THERAPY

Ekaterine Arkania, Nino Chichua

Institute of Clinical Oncology, Chemotherapy and Clinical Research Department, Tbilisi, Georgia

Background: Amplification or overexpression of HER2/neu oncogene is present in approximately 20% of primary invasive breast cancers. It is known that this is more aggressive BC subtype and patients with Her2/neu positive disease have a worse prognosis and need polychemotherapy combined with anti HER2/neu agents such as trastuzumab, pertuzumab, trastuzumab emtansine (T-DM1). Unfortunately, despite of modern treatment approaches 30% of patients on target therapy will relapse.

The aim of study was to reveal patterns of relapse and metastatic spread in HER2/neu positive breast cancer patients who underwent anti-HER2/neu treatment.

Patients and methods: From Institute of Clinical Oncology (Tbilisi, Georgia) database was retrospectively reviewed medical records of 60 individuals with HER2/neu positive early and metastatic breast cancer treated with neo and/or adjuvant and palliative chemotherapy and transtuzumab and pertuzumab from September 2012 until 2016 December. The patients were grouped according hormonal receptor status and conducted treatment regimens.

Results: Median age of included patients was 50; 40 patients have hormonal receptor status negative, her2/neu positive BC; 20/60 have 'triple-positive' (ER/PR/HER2neu positive) BC, metastatic disease was initially diagnosed in 11 patients who underwent chemotherapy with transtuzumab and pertuzumab; 34 patients were treated with chemotherapy and transtuzumab in neo and/or adjuvant setting; and 15 patients were treated with chemotherapy only.

Disease progression was seen earlier in patients with hormone receptor negative; HER2/neu positive breast cancer then in hormone receptor positive; HER2/neu positive cases; in 18 patients treated with chemotherapy and transtuzumab and in 8 patients treated with chemotherapy, transtuzumab and pertuzumab was developed subcutaneous metastases at postoperation area and at contralateral breast and in 10 cases metastatic spread was seen in regional lymph nodes. Visceral metastases (lungs; liver, bones) was seen mostly in patients treated with chemotherapy only and in patients initially diagnosed as metastatic. In 20 patients with subcutaneous and regional lymph nodes metastases despite of conducted palliative chemotherapy disease progressed quickly, in most of cases metastatic spread was seen in brain.

Conclusions: According to these data after treatment with anti HER2/neu agents such as transtuzumab and/or pertuzumab,

subcutaneous metastases and regional lymph node metastases developed more often than visceral metastases. Treatment of such cases are difficult, have worse prognoses and progresses quickly.

PO92

EVALUATION OF PERTUZUMAB TREATMENT FOR METASTATIC BREAST CANCER IN A RETROSPECTIVE SINGLE INSTITUTION STUDY

Mitsugu Yamamoto, Kenichi Watanabe, Nobumoto Tomioka, Masako Sato, Hideki Maeda, Hanae Tachikawa, Sayuri Terai, Masato Takahashi
Hokkaido Cancer Center, Department of Breast Surgery, Sapporo, Hokkaido, Japan

Background: Combination therapy of pertuzumab, trastuzumab and docetaxel is recommended as first line chemotherapy for HER2 positive metastatic breast cancer, according to the result of CLEOPATRA study. Pertuzumab has been applied to Japanese medical insurance since August 2013. We thought that evaluation of real world data is necessary.
Materials and Methods: We retrospectively evaluated the data of 55 metastatic breast cancer patients who received chemotherapy including pertuzumab at Hokkaido Cancer Center from August 2013 to July 2016.
Results: 22 (40%) patients were stage IV. 33 (60%) patients were recurrence, and the median disease-free interval was 42 months (9–164 months). 21 (64%) of these patients did not received trastuzumab as adjuvant chemotherapy. 43 patients received pertuzumab as first line chemotherapy, and 12 patients received as second line or later. All but 91-year-old patient treated with pertuzumab therapy combined with trastuzumab and any cytotoxic agent. Docetaxel, paclitaxel and others were used for 43, 8,3 patients respectively. The median follow-up time was 14 months (1–40 months). The median cycle of pertuzumab was 14 (1–55) and that of cytotoxic agents was 7.5 (1–55). The best overall response (CR, PR, SD or PD) rates according to RECIST were 15%, 58%, 17% and 10%, respectively. The response rate (RR) and the clinical benefit rate (CBR) were 73% and 90%, respectively. Pertuzumab was interrupted for 29 (53%) of these patients (owing to disease progression for 19 patients, owing to cardiac hypofunction for 3 patients, at the request of 1 patient, and owing to the other reasons for 6 patients). Kaplan-Meier analysis showed the median progression-free survival was 34.1 months.
Conclusion: Pertuzumab achieved very high RR and CBR, and furthermore, it was well tolerated. We confirmed that treatments including pertuzumab for HER2 positive metastatic breast cancer were quite excellent in real world analysis.

PO93

LEPTOMENINGEAL METASTASES FROM BREAST CANCER: ARE WE OVERTREATENING? DECISION ALGORITHMS AND ASSURING BREAST CARE

Ana Leonor Matos[2,1], Rita Verissimo[1], Vasco Fonseca[2], Arturo Botella[1], Ana Martins[2], Luis Campos[1]
[1]Hospital São Francisco Xavier, Internal Medicine, Lisbon, Portugal; [2]Hospital São Francisco Xavier, Medical Oncology, Lisbon, Portugal

Leptomeningeal metastasis (LM) is a rare but devastating complication of breast cancer (BC). Most central nervous system (CNS) metastases (MT) are parenchymal, with LM comprising a much smaller number. More often described in positive human epidermal growth factor receptor type 2 (HER2), triple negative and lobular variant of hormone-positive breast cancer being Luminal A BC the least frequent association (2,2%). Treatments are geared mainly towards tumor molecular characteristics, symptoms and patient performance status and preference. The choice of treatment is not clear and should be made by a multidisciplinary team. They rely on intrathecall and/or systemic chemotherapy (CH), radiotherapy and surgery, without clear survival benefit or improved neurological response.
We report the case of a 51-year-old woman diagnosed with luminal A BC in April 2016 (cT3N3M1) with multiple liver and a single bone MT. The patient was started on weekly paclitaxel followed by hormonal therapy with Letrozole with optimal response. In March 2017, she presented with intense occipital headache. An MRI excluded brain MT or other brain lesions. She was admitted in the emergency department of our hospital in April after an episode of generalized seizure and progression of neurologic symptoms, with worsening headache, oculomotor nerve palsy, paresthesia and blurred vision, which evolved to total vision loss. Cerebrospinal fluid analysis confirmed LM. A contrast-enhanced MRI also showed bilateral leptomeningeal enhancement. The patient had a good performance status (PS) and was proposed to start treatment with intrathecal methotrexate (ITMTX), with Ommaya reservoir. After 4 treatments patient shows a positive response with clinical and analytical improvement and minimal neurotoxicity.
LM carries a poor prognosis, with reported median overall survival of 9–30.3 weeks. At present, intensive treatment in the management of LM from breast cancer hasn't show survival benefit, and aims to improve or stabilize neurologic symptoms. The role of new agents for intrathecal therapy is unclear. We've taken into account the good PS, young age <60, stabilized systemic disease and absence of parenchymal MT as predictors of good prognosis with ITMTX, but treatment options may not be feasible for all, and an individualized approach for achieving best palliative care is essential. Also, after starting treatment, we should know when to stop it, and patient benefit is key. The main goal must be oriented towards quality of life improvement, entitling an early palliative intervention plan for these patients. However, there is a lack of decision algorithms for LM. Controlled and randomized studies are crucial to establish guidelines that warrant best care for these patients.

PO94

TREATMENT OF ADVANCED BREAST CANCER WITH T-DM1 IN A CANCER CENTER

Filipa Ferreira Pereira, Helena Magalhães, Sara Alves, Cláudia Vieira, Isabel Pimentel, Cristina Oliveira, Miguel Abreu, Joana Bordalo e Sá, Ana Rodrigues, Ana Ferreira, Júlio Oliveira, Marta Ferreira, Inês Pousa, Rosário Couto, Susana Sousa, Deolinda Pereira
Instituto Português de Oncologia do Porto, Medical Oncology Dept., Porto, Portugal

Trastuzumab Emtasine (T-DM1) is an effective antibody-drug conjugate, and generally well tolerated in monotherapy in treatment of advanced breast cancer. The benefit was demonstrated in first and subsequent lines.
We reviewed the medical data of advanced breast cancer treated with T-DM1. The descriptive analysis of main demographic, clinical and prognostic characteristics was performed. We looked for main endpoints: Recurrence, toxicities and progression free survival (PFS).
We included 31 patients, median age in the beginning of T-DM1 was 52 years (29–75) and the majority had a performance status 1 (64.5%; 20/31). At diagnosis, the majority had an invasive ductal carcinoma (83.9%; 26/31), stage II (42%; 13/31), positive hormonal receptors (77.4%; 24/31), grade 3 (48.4%; 15/31). 25.8% (8/31) was

submitted to: Neoadjuvant chemotherapy (CT); 80.6% (25/31) adjuvant CT; 90.3% (28/31) did radiotherapy and 80.6% (25/31) hormonotherapy. All patients did treatment with taxanes and trastuzumab in previous lines. Medium disease free survival was 30 months (9–125). 29% (9/31) had local relapsed and 93.5% (29/31) had distance relapsed. The most common metastatic sites were bone (25.8%), liver (19.7%) and lung (12.1%). The median PFS in T-DM1 was 7 months (1–48); 16.1% had complete response and 41.9% had partial response. 58.4% finished the treatment with TDM-1 because of disease progression; 22.6% discontinued the treatment by toxicity and 19.4%, maintain T-DM1 nowadays. The most common toxicities (≤Grade 2) was hematologic and hepatic. The reasons of discontinuation were: Neuropathy (3/7) and liver toxicity, pneumonitis, ischemic colitis and asthenia (1/7). Patients with less previous treatment lines had more objective responses (no significance statistic). Medium OS was 99 months (27–190).
PFS is similar to previous other studies, despite the small number of patients. The patients with earlier lines seem to have more objective responses, but in lack of statistical significance. The toxicity is easy manageable, when compare to taxanes and there are long survivors. This data show the positive impact of T-DM1 in real life patient's, heavily treated. Perhaps an earlier use could improve PFS, but ideal place to T-DM1 in the anti-HER2 drugs ladder is still changing nowadays.

PO95

PATTERNS OF RESPONSE TO THERAPY IN ER/PR POSITIVE METASTATIC BREAST CANCER

Marie Sundquist, Göran Tejler
County Hospital/Breast Unit, Surgery Dept., Kalmar, Sweden

Patients with ER/PR positive, distant metastatic breast cancer often, but not always, respond to endocrine treatment (ET). Also, time to treatment failure (TTF) is very variable. We wanted to explore if predictive factors for response to ET and chemotherapy (CT) could be identified from the tumour and patient characteristics.
Pts treated for ER and/or PR positive, distant metastatic disease at our unit during the last 15 years were identified and tumour data, treatments and responses were recorded. In most cases ER/PR/HER2 assessments were performed in the metastasis, but in some the status of the primary tumour was used. 250 pts with ER/PR positive disease were identified.
Most pts had received ET and CT sequentially, but 72 had only received ET and 39 only CT. TTF for each type of regimen was calculated and summoned to receive a cumulated response time (CRT) to ET and CT respectively. Histological grade and type of the primary tumour, ER/PR and HER2 status, site of presenting metastases and patient age at diagnosis were then related to the CRT.
The median age of pts that received ET and CT sequentially was 54 years and of those that only had ET 65 years.
146 pts received 1–5 regimens of CT and 125 responded >3-, 105 months. Median CRT was 11 months. Response rates to chemotherapies were 85, 81 and 94% for grade 1, 2 and 3 tumours respectively. However, pts with grade 3 tumours had a significantly longer maximum CRT, 65 months, as compared to pts with grade 1 tumours that had maximum CRT of 22 months. 213 pts received 1–6 different endocrine regimens. One hundred and ninety seven pts responded to treatment >3–250 months, median 27 months.
HER2 amplified tumours responded at 75% to ET combined with trastuzumab, maximum response time was 154 and median 34 months. Fifteen pts with HER2 amplified tumours received ET as single treatment and 14 of them responded 3–87 months.
Three groups of pts responded at 100% to ET; grade 1, mucinous and tubular mixed tumours. Pts 40 years or less of age at the time of diagnosis responded as well as those older than 60 – at 88%. Only approximately half of pts with ER-/PR+ tumours responded to endocrine treatment.
All 10 pts that received CT when presenting with hepatic metastases responded 6-28 months while only 6 of 9 pts receiving ET as first line therapy responded.
Although most subgroups of pts responded well to endocrine therapy only 3 small groups responded at 100%. The results support that patients presenting with hepatic metastasis and those with ER-/PR+ tumours should not receive endocrine therapy as first line of treatment. Pts with grade 1 tumours benefit less from chemotherapy than those with grade 3 tumours while endocrine treatment is of similar benefit for both groups.

PO96

ADVANCED BREAST CANCER IN YOUNG WOMEN: OUTCOME OF A PORTUGUESE HOSPITAL

David da Silva Dias, Elsa Campoa, Ana Júlia Arede, Paulo Luz, Tânia Madureira, Beatriz Gosalbez, Irene Furtado
Centro Hospitalar do Algarve, Medical Oncology, Faro, Portugal

Background: Breast cancer diagnoses among women aged under 50 reached an all-time high. 1–5% have metastatic disease at diagnosis. The number of cases of metastatic breast cancer (MBC) diagnosed in young women has increased as well in the last decades. The greatest increase was noticed in women ages 25–34. Cases of hormone receptor positive MBC increased more than cases where hormone receptor is negative. Routine screening is currently not recommended for women under 40.
Objective: The main goal of this study was to analyse a specific population of young women with MBC and raise awareness to the problem.
Methods: Retrospective study that included patients with diagnosis of advanced breast cancer (ABC), stage IV, younger than 50, between 2006 and 2015, treated in the oncology department of this hospital. The data were analysed with statistical software SPSS v23.
Results: In this study 26 women younger than 50 years old were diagnosed with ABC, stage IV, between 2006 and 2015, with a median age of 46 years old and a median overall survival of 53 months after the diagnosis. 51.9% of the carcinomas were located on the right breast. 11,5% of the population were submitted to surgical intervention and 65,4% to radiotherapy. 61,5% of the cases presented with positive hormonal receptors, 34,6% were HER2 positive. 11,1% of the cases were triple negative.
Metastatic disease was found in the lung in 34,6% of the cases, 50% in the liver, 61,5% in bones and 38,5% in the brain. 65,4% of patients presented with two or more metastatic locations, 15,4% presented with 3 or more locations.
In 65,4% of patients, chemotherapy was used as primary treatment and only 11,5% received hormonotherapy as first line treatment option. The difference in the overall survival between these two groups was not statistically significant.
Furthermore, 69,2% of patients presented with nodular involvement, with a medium overall survival of 47 months. The group without nodular involvement presented an overall survival of 87,7 months. This, however, was not statistically significant ($F = 2.34$, $p = 0.167$), probably due to the reduced sample presented.
Conclusions: This study describes the outcomes of ABC in young women in an oncological department and serves as preliminary study for future investigation. Due to the low incidence of these cases it is necessary to coordinate multicenter studies, including international cooperation, to reach greater sample and attain

more significant results. It is important to raise awareness about the increasing incidence of MBC in young women and early screening.

PR97

BRAIN MESTASTASIS AT DIAGNOSIS FROM BREAST CANCER, CLINICAL PATHOLOGICAL FEATURES AND SURVIVAL

Wendy Muñoz-Montaño, Jorge Alegria, Ivan Lyra, Alberto Alvarado, Fernando Ulises, Paula Cabrera, Enrique Bargallo, Santiago Concha
Instituto Nacional de Cancerología, Breast Cancer Dept., Distrito Federal, Mexico

Background: Breast cancer is also one of the most common malignancies that cause central nervous system (CNS) metastasis (JS, 2004). The 10-year incidence of CNS involvement in early-stage breast cancer is 5.2%; (Pestalozzi, 2006) and 10–15% of the patients with metastatic breast cancer (MBC) develop CNS metastasis. (Lin, 2004)
The aim of this study was to describe clinicopathologic features of patients with breast cancer brain metastasis (BCBM); to evaluate survival after diagnosis of BCBM; and to compare estrogen receptor (ER), progesterone receptor (PR), and HER2 expression
Materials and Methods: We identified 42 patients with BCBM at instituto nacional de cancerología (INCan) between 2007 and 2016.
Results: The median age was 49 years (28–79). Most patients had invasive ductal histology (88.1%), grade 3 tumors (73.8%). Of the tumors, 57% were ER-negative, 50% were PR-negative, 45.2% were HER2-positive, and 43% were triple negative (TN). Brain metastasis (BM) was solitary in 33% and iqual or more than two lesión in 62.7% of patients. Median survival after BM in all patients was 18.5 months vs 15 months in triple negative. In the univariate analysis, younger age, solitary brain metastasis, and ER or PR positivity in the breast tumors were associated with longer survival. In the multivariate analysis, predictors for longer survival included younger age, solitary brain lesion, and HER2 positivity in the breast cancer.
Conclusion: Patients with breast cancer who had brain metastases had a higher proportion of hormone receptor negative, HER2-positive, and TN tumors. Younger age, solitary brain lesion, and HER2 expression were independent predictors of better survival. These findings are important for making effective treatment decisions for patients with BCBM.

PR98

MULTIPLE DRUG RESISTANCE IN BREAST CANCER CELLS: MIRNAOME DYSREGULATION CAN FACILITATE EXPRESSION OF GENES ENCODING THE ATP BINDING CASSETTE (ABC) TRANSPORTERS

Volodymyr Halytskiy
Palladin Institute of Biochemistry of the National Academy of Sciences of Ukraine, Oncology Dept., Kiev, Ukraine

Background: One of the crucial causes of the multiple drug resistance (MDR) is overexpression of genes encoding the ATP binding cassette (ABC) transporters that mediate effective efflux of anticancer agents. MDR phenomenon exemplifies exceptional plasticity and adaptability of tumors. This research aims to identify in what way the tumor-related shifts in miRNAome can lead to abnormalities in expression of the ABC genes in breast cancer cells.
Methods: miRNA targets within gene transcripts were predicted in silico using the TargetScan software.
Results: Transcripts of ABC genes carry multiple targets of miRNAs down-regulated in breast cancer cells. High-conservative targets of miRNAs miR-7, miR-133ab, miR-145 and miR-199 along with conservative targets of miR-185, miR-186 and miR-326 as well as non-conservative targets of miR-125, miR-140, miR-143, miR-141 and miR-200abc were found in ABCC1 (MRP1) gene transcript. Many high-conservative targets of miRNAs miR-33, miR-101, miR-128, miR-140, miR-142, miR-145, miR-148/152, miR-199, miR-302c and miR-200bc were revealed in ABCA1 gene transcript. ABCC5 gene transcript carries high-conservative binding sites for miRNAs let-7, miR-101, miR-125, miR-199, miR-302c and miR-520 as well as non-conservative sites for miR-128, miR-15/16, miR-34, miR-185, miR-203a and miR-320. Transcripts of ABCB1 (MDR1), ABCA4, ABCA12, ABCB6, ABCC3, ABCC8 and ABCC11 gene carry targets for at least one of down-regulated miRNAs miR-22, miR-31, miR-33, miR-101, miR-128, miR-135, miR-140, miR-203a, miR-204, miR-299, miR-320, miR-338, miR-340, miR-377 and miR-383. Down-regulation of these miRNAs can allow overexpression of above genes encoding the ABC transporters. Although ABC gene transcripts carry some binding sites for up-regulated miRNAs, esp. miR-155, miR-27, miR-183, miR-217, miR-223, miR-224 and miR-455, these targets are less abundant than sites of down-regulated miRNAs and may not play a decisive role.
Conclusions: Shifts in miRNAome can facilitate overexpression of the ABC genes in breast cancer cells and contribute thereby to the MDR. In the case of acquired MDR, it is possible that down-regulation of some miRNAs is the adaptive response to the chemotherapy drug administration and leads not only to ABC gene overexpression, but also to up-regulation of genes responsible for cell surviving, proliferation activity, epithelial-mesenchymal transition, stemness acquisition and invasive growth.

PR99

EFFICACY AND SAFETY OF ERIBULIN IN PATIENTS WITH TRIPLE NEGATIVE METASTATIC BREAST CANCER: REAL LIFE EXPERIENCE

Ludmila Manzyuk Valentinova
Russia Oncology Center named after NN Blochin, Chemotherapy Department, Moscow, Russian Federation

Background: Triple-negative breast cancer (TNBC) accounts for 10–25% of all breast cancers (BCs) and a significant proportion of all BC deaths. Eribulin demonstrates improved overall survival compared to standard treatments, Her2-negative and TNBC patients have the most survival benefit. We sought to describe treatment patterns of eribulin and clinical outcomes among TNBC patients with advanced breast cancer treated in community oncology practices across the Russian Federation.
Methods: Patients treated with eribulin anytime between January 1, 2014 and January 1, 2017 with a diagnosis of MBC were identified by providers within the Russia Oncology Research Center. Providers reviewed the health records (electronic or paper-based) and abstracted selected data points into an electronic case report form for each eligible patient.
Results: A total of 52 TNBC patients were considered by 10 providers. A median of age at start of eribulin was 47,5 (39–55) yrs and ECOG status 0–1 were assessed. Most of the pts (92,3%) had visceral mts, a median number metastatic disease regions was 2 (1–3). Eribulin was administered as the 1st and 2nd line of BC treatment to 14 (26,9%) pts, 3rd line – to 9 (17,3%), the 4th and later lines – to 29 (55,8%) pts. At the time of initiation of eribulin, 88,5% of patient had received treatment with an anthracycline and with a taxane in either the adjuvant or metastatic setting.
Objective response occurred in 5 (9,6%) pts. Stable disease registered in 24 (46,1%) pts. Median progressive free survival was 3,0 months (95% CI 1,9–8,55).

Overall the drug was well tolerated. The most common type of toxicity was hematologic. Neutropenia grade II was observed in 8 (15,4) pts and III-IV grade in 6 (11,5%), two cases of febrile neutropenia were registered. 4 (7,7%) pts experienced fatigue grade II. Peripheral neuropathy grade II was observed in 4 (7,7%) pts. Dose reduction due to toxicity was performed in 8 (15,4%) pts. Treatment was never withdrawn due to toxicity.
Conclusions: This is the first real-life study of clinical outcomes, for patients initiating eribulin therapy for TNBC in community oncology practices throughout the Russian Federation. Our experience with Eribulin in TNBC patients confirms it efficacy and safety in all lines of treatment, including intensively pretreated patients in this hard-to-treat population.

PO100

GASTROINTESTINAL AND OTHER SELECTED ADVERSE EFFECTS OF CYCLIN-DEPENDENT KINASE 4 AND 6 INHIBITORS IN BREAST CANCER PATIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

Kyrillus Shohdy[2], Shaimaa Lasheen[2], Loay Kassem[2], Omar Abdel-Rahman[1]
[1]Ain Shams Faculty of Medicine, Clinical Oncology Department, Cairo, Egypt; [2]Kasr Alainy School of Medicine, Clinical Oncology Department, Cairo, Egypt

Background: Cyclin-dependent kinases 4 and 6 (CDK4/6) inhibitors showed promising results in metastatic breast cancer. An increased incidence of adverse events was remarkable. Among others, gastrointestinal involvement, fatigue and alopecia are of momentous impact on patients and their quality of life. Moreover, gastrointestinal adverse effects such as nausea, vomiting and diarrhea are universal events of most anti-cancer drugs. So, it is essential to analyze the exact burden added from CDK4/6 inhibitors in this regard.
Methods: Our search included PubMed, ASCO, ESMO and SABCS databases. Randomized phase II/III trials in metastatic breast cancer receiving CDK4/6 inhibitor were identified and considered relevant based on providing sufficient safety profile on incidence of gastrointestinal adverse effects.
Results: Of the 999 records initially screened for relevance, 33 articles were found relevant and four studies were finally eligible for meta-analysis with a total of 2007 patients. The relative risk for all grade nausea was 1.48 [95% CI: 1.121.93, p = 0.005], vomiting was 1.74 [95% CI:1.09-2.76, p = 0.02], decreased appetite 1.42 [95% CI: 1.07-1.88, p = 0.02], and for diarrhea 1.44[95% CI: 1.19-1.74, p= 0.0002]. Meanwhile, the RR for high grade nausea was 1.10 [95% CI: 0.29-4.13, p = 0.89], vomiting 1.38 [95% CI: 0.25-7.75, p = 0.72], for decreased appetite 4.00 [95% CI: 0.87-18.37, p = 0.07], and for high grade diarrhea 1.19 [95%CI: 0.44-3.21, p = 0.73]. Ribociclib subgroup was associated with increased risk of all grade and high grade vomiting, but with lower risk of high grade decreased appetite in comparison to palbociclib subgroup. Meanwhile, The RR for all grade fatigue was 1.34 [95% CI: 1.17-1.54, p < 0.0001], for all grade alopecia was 2.14 [95% CI: 1.23-3.73, p = 0.007], and for all grade mucositis 4.87 [95% CI: 2.11-11.24, p = 0.0002]. In addition, the RR for high grade fatigue was 2.40 [95% CI: 1.10-5.26, p = 0.03].
Conclusion: Selective CDK4/6 inhibitors was not associated with higher-grade GI toxicities reflecting a well-tolerated safety profile. The most common dose-limiting toxicity was neutropenia and surprisingly it was not associated with concomitant diarrhea. Regarding the increase in all grade GI toxicities, it needs further caution with addition of cytotoxic chemotherapy. Moreover, choice of proper anti-emetics and anti-diarrheal should be revised according to the drug-interactions profile of each CDK4/6 inhibitor separately. Furthermore, our results signify an increase in the risk of fatigue (both all- and high-grade) and alopecia in patients receiving CDK 4/6 inhibitors. Subgroup analysis showed that ribociclib is significantly associated with high risk of alopecia in contrary to palbociclib.

PR101

BENEFIT IN OVERALL SURVIVAL OF LOCO-REGIONAL CONTROL AMONG PATIENTS WITH METASTATIC BREAST CANCER

Maria Tereza Nieto-Coronel, Claudia Arce Salinas, Ariana-Nañez Tabares, Nancy Reynoso-Noveron, Rebeca Ramirez-Morales, Leticia Mendoza-Galindo, Fernando Lara-Medina, Jose Luis Aguilar-Ponce
Instituto Nacional de Cancerologia, Medical Oncology, Mexico City, Mexico

Background: Metastatic breast cancer represented 13% of all new cases at our Institution. The role of locoregional control in patients with metastatic breast cancer is controversial. Some evidence suggests the benefit in survival, however the lack of evidence from a randomized controlled trial does not allowed us to stablish conclusions. The aim of this report is to evaluate the impact in overall survival of the locoregional control (surgery and/or radiation therapy) among metastatic breast cancer.
Methods: Retrospective analysis from our local database; 302 consecutive cases were selected from 2007 to 2011. We included patients with the novo-metastatic disease. Who underwent to surgical and/or radiation; decision treatment was done by the treating physician based on clinical response to chemotherapy. Chemotherapy consisted in anthracyclines + taxanes + trastuzumab. Statistical analysis was done with SPSS v.20. Local IRB approved the review.
Results: Median age was 50.78 years-old (20.9-86.8), breast cancer subtypes were HR + HER2- 46.5%, triple negative 24.8%, HER2+/HR+ or – 27.7%. 25,2% received any locoregional control, 18,9% mastectomy and 11,6% radiotherapy. Median follow-up was 28 months (0–124). Median overall survival (OS) was 51 months for mastectomy group (CI 95% 33.76–68.23) in comparison with 29 months for the non-surgical group (CI 95% 23.9–34.09) p = 0.002, for radiotherapy group was 75 vs 32 months for non-radiotherapy group (CI 95% 26.33–37.66) p = .001, for those patients who received radiation and or surgery, OS was 50 mo (CI 33.71–66.28) in comparison with 29 mo (CI 95% 23.66–34.34) p = 0.000. Multivariate cox analysis for breast cancer subtypes showed that patients with ER/PR/HER2 positive group had the better outcome.
Conclusions: This retrospective analysis showed that local control with surgery or radiation therapy improves survival, independently of the breast cancer subtype. Prospective analysis should be done to confirm the benefit.

PR102

THE BEHAVIOUR OF THE TRIPLE NEGATIVE BREAST CANCER AMONG AFRICAN WOMEN IN SUDAN

Shaimaa Siddig
RICK, Palliative care and Oncology, Khartoum, Sudan

Perou's molecular classification defines tumors that neither express hormone receptors nor over express HER2 as triple- negative (2). The TNBC subtype is considered to have an aggressive clinical behaviour (3) and poor prognosis (1). The risk rises with increasing parity and increasing waist- to- hip circumference (3). The research was conducted from all breast cancer patients who attended the oncology services at RISK, and the study was

concluded in the period of October 2016 to April 2017. In order to observe the characteristics and behaviour of the TNBC, to determine the risk factors and to estimate the survival outcomes. 138 were identified, data collected from the hospital records and personal meetings, 8 were excluded because of incomplete data (histopathology report not attached). Therefore, this is a descriptive retrospective study. Characteristics of the patients and risk factors included the age, residency, BMI, parity, family history, co-morbidity, stage, the time of onset of symptoms to the presentation, histological type, grade and differentiation. The study included the patients in Sudan, from Khartoum 27.7% non Khartoum 62.3%, other African countries 10%. The majority of patients presented at an advanced stages; stage I 17.7%, stage II 9.2%, stage III 42.3%, stage IV 30.8%. More than 40% had metastasis throughout the disease course, ranging from bone being the commonest followed by brain, liver, lung and multiple metastasis. Bilateral disease in 3.8%. Furthermore; the patients were classified according to their age into 4 age groups from 20 to 39 [36.9%], 40–59 [26.2%], 60–79 [28.5%], 80–100 [7.7%]. Regarding parity 40% were grand multiparous that gave birth to more than 5, strong family history in 10.8%. Histopathologically 93.1% were invasive ductal carcinoma, the remainders were lobular, medullary, mucinous, papillary carcinomas and others. The patients received a variety of chemotherapy regimens, radiotherapy and underwent different surgeries ranging from radical to conservative types. Assessment of their response clinically and radiologically, also less extents histopathologically. There was a significant relationship between the time of initial complaints and the stage at presentation, most of the patients with stage 3 and 4 presented in a period of less than 6 months. Furthermore, young patients had the highest incidence of relapse. Taxane-based chemotherapy associated with a significant increase in the disease free survival and overall survival. Measuring the survival and outcomes using Kaplan Meier was estimated.

PR103

METASTATIC BREAST CANCER SUBTYPE AND CLINICAL MANIFESTATIONS: MONTENEGRIN EXPERIENCE

Ivana Durutovic, Vladimir Todorovic
University of Montenegro, Clinic for Oncology and Radiotherapy/ Medical Faculty, Chemotherapy Department, Podgorica, Montenegro

The aim of the study was establishing distribution of molecular subtypes, the correlation between molecular subtype, metastasis pattern and clinical parameters.
The research included 214 women diagnosed with metastatic breast cancer in the period from 2006 to 2012. Minimal follow up period was 24 months. The research used the data from the Hospital Cancer Registry at the Clinic for Oncology and Radiotherapy of the Clinical Center of Montenegro. Approximation by immunohistohemistry was used to determine molecular subtype.
Median age at metastatic disease diagnosis was 58.2 years. Out of total number of patients, 56% had the luminal A molecular subtype, 18% had the HER2 subtype, 16% had the triple negative subtype, while the least frequent, at only 10%, was the luminal B molecular subtype. The patients with HER2 subtype developed brain metastasis more frequently than those with the other subtypes ($p = 0.023$). Primary tumours of these patients mostly was grade 3. The patients with luminal subtypes A and B more frequently developed bone metastasis, as the first and the second site of relapse ($p < 0.001$). Patients with luminal subtype A less frequently had as relapse site lungs ($p = 0.016$).
The patients with extreme obesity as the most frequent first metastatic site had pleura ($p = 0{,}035$). Observed is trend that obese patients more frequently as the first relapse site had lung. Concerning this relation, number of patients is relatively small, which limits power of result.
The patients with the HER2 and triple negative subtypes had shorter cumulative survival comparing to those with luminal subtypes ($p = 0.011$). Median time to progression was 15 months. According to our results, time to progression in patients with the HER2 and triple negative subtypes was shorter than average ($p = 0.027$), respectively 11.6 and 12.4 months. At point of two years follow up, only 35% of HER2 subtype patients and 40% of patients with the triple negative subtype were alive, in contrast with the significantly larger proportion of patients with the luminal subtypes.
Metastatic sites, time to progression and survival varied by subtype as approximated by ER, PR and HER2. The HER2 subtype was a predictor of worse outcomes and poor survival.

PR104

CAPECITABINE IN THE TREATMENT OF METASTATIC BREAST CANCER: SINGLE-INSTITUTION RETROSPECTIVE ANALYSIS

Ahmed Gaballah, Ghada Refaat, Sherif Abdelwahab, Sarah Yousri
Ain Shams University Hospital, Dept. of Clinical Oncology, Cairo, Egypt

Background: Metastatic breast cancer (MBC) is the leading cause of cancer-related death in females. Cure is unachievable hence the main goal of treatment is disease control with maintained quality of life. Capecitabine had proven efficacy in first and subsequent lines of treatment, besides being well-tolerated with manageable toxicity. In this analysis we aimed at evaluating efficacy and toxicity of capecitabine.
Methods: We reviewed patients' files, treated at our department, from January 2011 to June 2016. Clinic-epidemiological data, treatment received and outcome were analyzed. Descriptive data presented as mean, median, standard deviation and range. Survival analysis was presented using Kaplan-Meier curves.
Results: Forty-nine patients were included. Median age was 47 years. 20.4% presented as metastatic. Ductal carcinoma dominated 83.6%. Estrogen, progesterone and HER2-neu receptors were positive in 53.1%, 44.9% and 14.3%. Thirty-eight patients received adjuvant/neoadjuvant; 35 anthracycline-based with/without taxanes. Only 11 patients received capecitabine as 1st line. Thirty-six patients received it alone, while 11 with vinorelbine, one with taxane, and one with lapatinib.
Partial response achieved in 24.5%, in addition to 28.6% stable disease. Median progression free survival was 3.5 months; 3 months for single agent and 4 months in combination ($p = 0.591$). Age, co-morbidities, ER, PR, brain metastasis, number of metastatic sites and initial ECOG performance statistically affected PFS with p values 0.004, 0.049, 0.003, 0.007, 0.026, 0.038 and <0.0001 respectively. 1st line showed median PFS 9 months and subsequent lines 3 months ($p = 0.019$). Capecitabine >6 cycles improved PFS (12 vs 2.5 months, $p = 0.016$).
Median overall survival was 14 months and was higher in ER and PR positive ($p < 0.0001$ and 0.001). Median OS for 1st line was 23 months and 10 & 9 months for 2nd line or beyond ($p = 0.435$).
One patient developed grade IV neutropenia and one hand-foot syndrome. Grade III hand-foot syndrome was reported in 10.2% and GIII neutropenia, diarrhea, nausea, vomiting and fatigue were reported in one patient each.
Conclusion: Capecitabine is effective for MBC with better toxicity profile. It is well-tolerated with high compliance rate.

PR105

DOES OLIGO-METASTATIC BREAST CANCER WARRANT A MULTIDISCIPLINARY APPROACH WITH CURATIVE INTENT?

Tessa Steenbruggen[1], Astrid N Scholten[2], Marie Jeanne TDF Vrancken Peeters[3], Marjo Holtkamp[1], Jelle Wesseling[4], Sabine C Linn[1], Gabe S Sonke[1]
[1]The Netherlands Cancer Institute, Medical Oncology, Amsterdam, The Netherlands; [2]The Netherlands Cancer Institute, Radiotherapy, Amsterdam, The Netherlands; [3]The Netherlands Cancer Institute, Surgical Oncology, Amsterdam, The Netherlands; [4]The Netherlands Cancer Institute, Pathology, Amsterdam, The Netherlands

Case: A 38-year old woman presented with 2 biopsy-proven liver metastases. She had triple negative breast cancer (pT1cN0) of the right breast 6 years earlier for which she received lumpectomy, radiotherapy and 6 cycles of chemotherapy (cyclophosphamide, methotrexate and fluorouracil). PET/CT and MRI of the liver showed no additional lesions. Therefore, the recurrence was classified as oligo-recurrence and we decided to treat her with curative intent, including 'neoadjuvant' chemotherapy and metastasectomy. She received 6 cycles of carboplatin and weekly paclitaxel leading to a complete radiologic remission. The ensuing metastasectomy confirmed a complete pathological remission of both liver metastases. Four years later, she remains in excellent condition without clinical or radiological signs of recurrence.
Discussing the optimal treatment plan for this patient prompted many clinical questions, which may pertain to more patients with oligo-metastatic breast cancer (oligo-MBC):

1. Is a multidisciplinary approach with curative intent warranted for patients with oligo-MBC?
2. Which biomarkers can help to select patients for such an approach?
3. What is the preferred method for local treatment of metastatic lesions (surgery, stereotactic radiotherapy, radiofrequency ablation, combinations)?
4. Is a complete or partial radiological remission on chemotherapy necessary to proceed to local treatment?
5. How should these patients be followed in the coming years?
6. Which clinical trials addressing a multidisciplinary approach in oligo-MBC patients should be performed?

While most of these questions were discussed during the European School of Oncology–Metastatic Breast Cancer Task Force meeting in 2008 (Pagani JNCI 2010), little has changed in daily practice and evidence for a multidisciplinary approach from randomized phase 3 trials is still anticipated. We are conducting a prospective study (NCT01646034) in which patients with oligo-MBC are treated with 'neoadjuvant' chemotherapy and maximal local therapy for all detected metastases and locoregional disease, if present, as the patient described in the case. The primary endpoint is event-free survival at 3 years. Additionally, we are collaborating with the Netherlands Cancer Registry to collect data from ~1,000 patients treated for MBC between 2000 and 2007. We will compare the prognostic value of oligo-MBC, other clinico-pathological variables and treatment regimens between patients who survived more than 10 years after MBC diagnosis with a representative sample from all MBC-patients. It would be great to combine our efforts to create a prospective registry for patients with oligo-MBC in Europe and design an international (EORTC) trial addressing the most urging questions in the approach to oligo-MBC.

PR106

DOES ERIBULIN HAVE AN EFFECT ON ANTI-TUMOR ACTIVITIES OF THE SUBSEQUENT REGIMEN USED IN METASTATIC BREAST CANCER

Jihye Choi[1], Hyang Suk Choi[1], Seok Joon Lee[1], Chan Sub Park[1], Hyun-Ah Kim[1], Min-Ki Seong[1], Geumhee Gwak[2], Woo Chul Noh[1]
[1]Korea Cancer Center Hospital, Surgery, Seoul, Korea; [2]Sanggye Paik Hospital, College of Medicine, Inje University, Department of Surgery, Seoul, Korea

Background: Eribulin is a synthetic microtubule dynamics inhibitor widely in use. It has shown significantly improved overall survival and progression free survival in a phase 3 study (EMBRACE). Suggestions have been made that eribulin exerts antivascular activity and promotes tumor vascular remodeling resulting in increased tumor perfusion. In consequence, these mechanisms might contribute to increased antitumor activities of the subsequent anticancer regimen. However, this effect is not thoroughly evaluated in real clinical setting. The purpose of this study was to investigate eribulin-induced effect on the subsequent regimen in metastatic breast cancer patients, clinically.
Methods: Medical records of metastatic breast cancer patients who received more than four treatment regimens after local or distal recurrence, between Jan, 2010 and March, 2017 were retrospectively reviewed. Among 384 patients, 31 patients were identified in the eribulin group. Sixty-two patients who received treatment of physician's choice (TPC) in the same time period were matched 1:2 to this group. Propensity matching variables included age, hormone receptor status, HER-2 status, number of previous chemotherapy and time from cancer diagnosis to first recurrence.
Results: After propensity matching, two groups were well balanced on a number of patient characteristics. Before subsequent regimens were administered, patients had received a median of five treatment regimens most of which included taxanes, anthracyclines and capecitabine. The average time from diagnosis to first local or distal recurrence was 36.6(±38.79) months. 63(66%) patients belonged to luminal, 13(15%) patients, Her2+ and 17(18%) were triple negative subtype. In the eribulin cohort, patients had received 2–12 cycles of eribulin. Eribulin was administered as a 3rd regimen in 11(35%) patients, as a 4th (32%) in ten patients and in the remainder, 5 to 11th regimen. Progression free survival of the subsequent regimen in the eribulin group (6.44months) was not significantly different from that in the TPC group (8.37 months; $p = 0.45$). Overall survival of the two groups were not significantly different (79.25 mo vs. 78.27 mo; $p = 0.93$)
Conslusions: In our study, eribulin did not have significant influence on progression free survival of the subsequent anticancer regimen nor on overall survival. Whether proposed eribulin-induced antitumor activities directly translate into clinical improvement or not, needs further evaluation.

PR107

LOCALLY ADVANCED BREAST CANCER IN WOMEN UNDER 40 YEARS-OLD: SINGLE CENTER STUDY

Inês Brandão Rêgo, Nadine Saraiva, Leonor Pinto, Cláudia Sousa, Judy Paulo, Andreia Chaves, Mónica Mariano, Sofia Broco, Ana Pais, Pedro Madeira, Isabel Pazos, António Pêgo, Teresa Carvalho, Gabriela Sousa, Regina Silva
IPOCFG, E.P.E., Medical Oncology Department, Coimbra, Portugal

Background: Locally advanced breast cancer (LABC) constitutes a heterogeneous entity that includes advanced-stage primary tumors, cancers with extensive nodal involvement and

inflammatory breast carcinomas. It represents the most advanced stage breast cancer that is still potentially curable with surgery, radiation, and systemic therapy. Few things have been written in the literature about this stage of disease in younger age diagnosis of breast cancer patients.

Methods: We present a retrospective study of 204 patients younger than 40 years, from January of 2009 to December of 2013. Of that analyses 31.6% had locally advanced breast cancer (stage III) at diagnosis and the aim of this study was to describe the clinical features and outcomes in that group of patients. Multivariate statistical analysis, was performed using the SPSS v.20 program.

Results: Analyzing retrospectively these 75 women we found that the mean age at diagnosis was 35 years old (min 22 – max 39), mostly ECOG-PS 0. Histological examination of the tumors revealed that were mostly invasive ductal carcinoma and 62.7% of our sample were grade 2, 17% grade 3 and 10% grade 1. Considering the subtypes, we had 24% luminal A-like, 24% luminal B-like (HER2-negative), 21.3% HER2-positive and 30.7% patients had triple negative breast cancer. Breast-conserving surgery was performed in 2.7% and 96% of patients received neoadjuvant chemotherapy with 26.4% achieving pathologic complete response (pCR). At the end of this study progression was identified in 31.1% of the patients and 26.7% died.

Conclusion: This single center study of women under 40 years old with locally advanced breast cancer confirms what is being described in the literature that LABC is an aggressive type of BC and responsible for poor prognosis, resulting in a higher mortality rate.

PR108

DOES THE CHOICE OF FIRST-LINE CHEMOTHERAPY INFLUENCE THE OUTCOME OF ER + HER2: METASTATIC BREAST CANCER?

Junichiro Watanabe, Kanako Yoshitsugu
Shizuoka Cancer Centre, Breast Oncology Dept., Shizuoka, Japan

Background: Estrogen receptor-positive, HER2-negative metastatic breast cancer (ER + HER2-MBC) is recognized as having a good prognosis; however, the survival from the initiation of chemotherapy can be as short as two to three years. While numerous anticancer agents are available these days, the impact of the first-line chemotherapy (1stCTx) on the ultimate outcome has not been well discussed.

Methods: We reviewed our medical records from 2002 to the present to assess the background characteristics, regimen and survival of ER + HER2-MBC patients who underwent 1stCTx. Statistical analyses were performed using the chi-squared test, the Kaplan-Meyer method and multivariate COX regression analysis.

Results: We identified 311 ER + HER2-MBC (224 recurrent, 87 advanced) patients who received 1stCTx. The applied regimes were as follows: Anthracycline-based (A), 82 (26.4%); paclitaxel (P), 69 (22.2%); capecitabine (X), 37 (11.9%); P + bevacizumab (PB), 32 (10.3%); docetaxel, 27 (8.7%) and others, 65 (20.5%). A was significantly preferred in cases of advanced BC ($p < 0.01$, chi-squared) or visceral involvement ($p < 0.05$); however, A was less frequently administered in patients with a history of (neo)adjuvant CTx ($P < 0.01$). PB was frequently applied to 'high-risk patients,' such as those with visceral involvement ($p < 0.05$) or a history of (neo)adjuvant CTx ($p < 0.05$). Patients who received A or P as 1stCTx showed a good prognosis (median survival from the initiation of CTx: 1036.0 and 1056.0 days, respectively). In contrast, those who received X or PB as 1stCTx showed a poorer prognosis (median survival from the initiation of CTx: 819.0 and 777.0 days, respectively) than those who received A or P. However, the difference was not statistically significant ($p > 0.05$, log-rank). There were no specific risk factors influencing the outcome at the initiation of each 1stCTx on a multivariate analysis. However, patients who received A as 1stCTx had a significantly increased mortality risk with subsequent P use (hazard ratio 1.78, $p < 0.05$).

Conclusions: Our realistic picture of the daily practice showed that the choice of 1stCTx did not markedly influence the survival of ER + HER2-MBC patients. A prospective, randomized study including the follow-up of the post-progression survival to determine the optimum CTx sequence is warranted.

PR109

A WOMAN WITH VON RECKLINGHAUSEN AND A RESECTABLE BRAIN METASTASIS HER2 POSITIVE

Anna Andreadou
Theageneio, 3rd Clinic, Thessaloniki, Greece

Introduction: Neurofibromatosis type 1 (NF1) is a multi-system genetic disease, a common neurocutaneous condition with an autosomal dominant pattern of inheritance. It is characterized by cutaneous findings, most notably café-au-lait spots and axillary freckling, by skeletal dysplasias, and by the growth of both benign and malignant nervous system tumors, most notably benign neurofibromas. Women with palpable lesions do not ask for consultions, since they believe it is moles.

Case report: A woman with von Recklingahausen syndrome at the age of 53 presented with breast cancer in May 2011. Due to locally advanced cancer with pathological lymph nodes a core biopsy was performed in order to start neo-adjuvant chemotherapy. The biopsy showed mucinous carcinoma. While the immuno – histochemistry expressed ER: +, PR: +, CERBb2: +3, KI – 67:25–30%. The woman started chemotherapy with the schedule of 4 cycles epirubicin – cyclophoashamide q 2 weeks., and then 4 cycles docetaxel – herceptin q3 weeks. In October 2011, a mastectomy was performed and the pathology report showed no tumor regression. T:10 cm, N:7/8 lymph nodes. With no delay, the woman continued herceptin (till 08/01/2013), received radiotherapy, and hormonal treatment with letrozole. In November 2013, a brain MRI was performed due to dizziness that showed a mass in the left parietal lobe, with diameter of 3cm. A surgery was performed in December 2013, but the mass was not completely excisized and she had cyber – knife in February 2014 for the remaining tissue. There was no other disease progression and the woman re – initiated herceptin and examestane. In August 2014, the woman was admitted in our clinic due to right pyramidic. A brain MRI showed progression of the disease and the patient started cortisol, mannitol, and radiotherapy of the brain. the neurological condition was improved, but 3 months later due to new deterioration and since there was no splanchnic progression, a new surgery was discussed and eventually was performed in November 2014. The woman continued herceptin examestane since there was no progression in other organs. The last image of the brain is disease free (03/2017) and she continues herceptin – examestane.

Conclusion: There are few cases reported with women with von Recklinghausen and breast cancer. What is interesting and should be mentioned is that the gene for von Recklinghausen is located in chromosome 17q11 whether the gene of HER2 is also located in the arm 17q12. Neurofibromin, the gene product, is ubiquitously expressed at high levels in the nervous system and functions as a tumor suppressor. Loss of neurofibromin through mutation leads to an increased risk of developing benign and malignant tumors in affected individuals.

PR110

IMPACT OF NEXT-GENERATION SEQUENCING (NGS) FOR PRIMARY ENDOCRINE RESISTANCE ON BREAST CANCER PATIENTS

Zhenchuan Song[1], Ruoyang Li[1], Shuo Feng[1], Tianli Hui[1], Fugen Li[2], Jingyu Li[2], Jiajia Xu[2]
[1]4th Hospital of Hebei Medical University, Breast Center, Shijiazhuang, China; [2]Institute of Precision Medicine, 3D Medicines Inc., Shanghai, China

Background: Multiple mechanisms have been detected to account for the acquired resistance to endocrine therapies in breast cancer. Evidence supports that PIK3CA mutation status may contribute to endocrine resistance. However, some clinical trial data show that whether PIK3CA mutate or not does not affect the therapeutic effect of TAM. In this study we retrospectively studied the mechanism of primary endocrine resistance in estrogen receptor (ER) positive breast cancer patients by NGS.
Patients and Methods: Tumor specimens and matched blood samples were obtained from twenty-four breast cancer patients at the Fourth Hospital of Hebei Medical University, Shijiazhuang, China. All the patients were estrogen receptor (ER) positive, among which, fifteen patients displayed endocrine resistance (recurrence and/or metastases within 24 months from the beginning of endocrine therapy), and the other nine patients kept sensitive to endocrine therapy for more than 5 years. According to their medical records, all of the 24 patients were invasive breast cancer (T1-2, N1-2, M0). Tumor tissue was obtained from biopsy or surgery upon the initial diagnosis of cancer at the primary site, and tumor genomic DNA was extracted from formalin-fixed and paraffin-embedded (FFPE) tumor tissue blocks. Normal genomic DNA was extracted from peripheral blood mononuclear cells. Sequencing libraries for each samples were prepared followed by targets capturing for 372 genes that are frequently rearranged in cancers. Massive parallel sequencing was then performed using Illumina NextSeq 500, and samples with a mean sequencing depth of 500× were analyzed.
Result: Three patients demonstrated HER2 copy number gains by NGS in each group, which was consistent with the IHC and FISH analysis. 8(55%) of 15 patients showed PIK3CA mutation (3 pathogenic variants in kinase domain, 3 pathogenic variants in helical domain, and 2 variants of unknown significance) in the endocrine-resistant group, and 3 (33%) of 9 patients displayed PIK3CA mutation (2 pathogenic variants in kinase domain and 1 pathogenic variant in helical domain) in the endocrine-sensitive group. In the sensitive group, copy number gain of C11orf30 (EMSY) gene, copy number loss of CDH1 (E-cadherin) gene, and a missense mutation of SF3B1 gene were also detected, which were supposed to decline the expression of the ESR1 and contribute to endocrine sensitivity.
Conclusion: PIK3CA mutation rate in the resistance group is relatively higher than that in the sensitive group, which indicates that PIK3CA mutation may contribute to breast cancer primary endocrine resistance. If future studies were conducted with a larger spectrum of patients, results might be more conclusive.

PR111

IMPACT OF MOLECULAR SUBTYPES IN PATIENTS WITH METASTATIC BREAST CANCER AT DIAGNOSIS

Tânia Madureira, Paulo Luz, David Dias, Raquel Dionísio, Beatriz Gosalbez, Irene Furtado
Centro Hospitalar do Algarve, Serviço de Oncologia Médica, Faro, Portugal

Background: The increasing of molecular and genetic knowledge has provided a new understanding of breast cancer as a heterogeneous disease that can be classified into different subtypes with distinct clinical and pathological features, therapeutic response patterns and outcomes. The influence that the molecular subtypes may have in breast cancer is better established in the early-stages, but less is known about the impact in patients presenting with metastatic disease.
Objective: The main goal of this study was to evaluate the impact of molecular subtypes in patients with metastatic breast cancer (MBC) at diagnosis.
Methods: We performed a retrospective study based in the review of clinical data from patients with MBC at diagnosis, between January of 2009 and December of 2015. Molecular subtypes were defined as Luminal A(LA), Luminal B(LB), Luminal B/HER2 positive (LB/HER2+), Nonluminal/HER2 positive (NL/HER2+) and Triple Negative (TN). Descriptive statistics and Kaplein-Meier survival curves were computed. Data were analysed using SPSS 23.0.
Results: Were included 69 patients: 12 LA cases, 24 LB, 13 LB/HER2+, 14 NL/HER2+ and 6 TN. The mean age at diagnosis was 65 years (34-88). The median overall survival was 18.3 months. In the entire cohort, the most frequently metastatic site observed was bone counting with 42 cases (60,9%) followed by liver with 20 patients (37,7%). Isolated bone metastasis (IBM) were observed in 36.2% of the patients and isolated visceral metastasis (IVM) in 34.8%, with 29% of the cases presenting with plurimetastasis (PM). Concerning to median survival, were registered 26.7 months, 16.1 months and 19.8 months, respectively for each subgroup. Relatively to molecular subtype analyses, the median survival of LA was 26.7 months, LB 16.7, LB/HER2 + 21.9, NL/HER2 + 6.1 and TN 8.6. It was realized that IBM showed a predominance in Luminal MBC (LA, LB and LB/HER2+) and IVM in NL/HER2+ and TN. Although the reduced cohort, the subtype LA revealed a larger median survival in IBM subgroup.
Conclusion: As described in literature, our study confirmed that bone is the most prevalent metastatic site in breast cancer, also with the highest median survival. Luminal subtypes of MBC appear to have a more favourable outcome, with better median survival, compared to NL/HER2+ and TN, which prognostic remains poor. We can conclude that molecular subtypes have impact in patients presenting with MBC. Nevertheless, is imperative to do more research to improve the outcomes of our patients.

Clinical Issues: Surgical Oncology

PO112

BREAST CANCER LIVER METASTASES: WHEN TO OPERATE

Vítor Devezas, André Costa Pinho, Fabiana Sousa, Fernando Osório, Susy Costa, André Magalhães, Henrique Mora, Luis Afonso Graça, José Luis Fougo, José Costa-Maia
Centro Hospitalar de São João, General Surgery, Porto, Portugal

Introduction: Treatment of metastatic breast cancer has undergone considerable changes and recent advances in systemic therapies significantly increased survival. Regarding breast cancer liver metastasis (LM), selected patients may benefit from combining systemic therapies with liver therapies, namely resection.
Objective: Comparing survival after LM diagnosis among those who did metastasectomy and those who did not.
Material and Methods: Retrospective review of the clinical files of 55 female patients with breast cancer (mean age of 48 years), treated to histologically proven LM, from 2011 to 2016 in a single institution. The median follow up was 73 [10-316] months. Data were analyzed using SPSS®22.

Results: Our patients had a median survival after diagnosis of LM of 16.6 [0-93] months. The mean time elapsed between breast surgery and LM diagnosis was 58 (+/−51.5) months (with 3 cases of synchronous LM).
In 32 patients multi-organ metastases was identified (the most common sites being bone, lung and lymph node). Median survival after diagnosis of LM in these patients was 14 months [4-51].
Of the remaining 23 patients, liver was the unique metastatic organ, 13 had diffuse bilobar hepatic metastasis (median survival after LM diagnoses of 18 [0-44] months). 10 patients were proposed for surgical treatment of which in 3 peritoneal carcinomatosis was identified and no hepatic metastasectomy was performed.
So, only 7 patients underwent liver metastasectomy, of which 3 need a re-metastasectomy. Median time elapsed between breast surgery and LM diagnosis in these patients was 23 months [0-70] and 6 ot them received neoadjuvant systemic treatment for LM. There was no mortality or major morbidity (Clavien ≥ 3) in these procedures. Median survival after diagnosis of LM in this subgroup of patients was 56 [14-93] months ($p < 0.01$, when we compared to survival of patients with isolated LM or LM and bone metastases non-operated).
Discussion/Conclusion: Systemic therapies should be considered to the majority of patients with LM. Patients with small oligometastases confined to the liver, diagnosed 1 year or more after the treatment of the primary tumor and responding to systemic therapy, should be evaluated for liver metastasectomy. Management of these complex patients by an experienced multidisciplinary team is essential to provide the best treatment options.

PO113

GISEL STUDY GROUP PROPOSAL: A PHASE II RANDOMIZED CLINICAL TRIAL IN BREAST CANCER PATIENTS WITH SKIN METASTASES TREATED WITH OR WITHOUT ELECTROCHEMOTHERAPY (ECT) DURING THE FIRST LINE OF TREATMENT

Roberto Agresti[1], Giulia Bianchi[2]
[1]Istituto Nazionale dei Tumori, Breast Surgery Unit, Milan, Italy;
[2]Istituto Tumori Milano, SC Oncologia Medica 1, Milan, Italy

Background: The multicentre cohort analysis conducted by GISEL (Italian Senological Group for Electrochemotherapy) confirmed that Electrochemotherapy (ECT) has high antitumor activity (> 90% ORR) on skin metastases of breast cancer. Findings are consistent previous studies. ECT showed a significant higher efficacy, i.e. %CR, in the treatment of small (<3 cm), non-ulcerated lesions, without visceral metastases. Moreover, ECT showed a significant better performance in estrogen receptors positive, low-proliferating tumours. ECT showed a low toxicity and good acceptance by all treated patients. Patients who achieved complete response experienced a durable locoregional control on superficial metastases.
Phase II international multicentre randomized clinical trial: The study is a comparison between different therapeutic strategies in skin metastases from LUM-A-like and LUM-B-like breast. In order to define if ECT is an effective local treatment of superficial metastases from breast cancer we propose a two arms phase II international multicentre randomized clinical trial. The primary endpoint is to determine the efficacy of ECT used during the first therapeutic approach of breast cancer skin metastases vs delayed ECT or no ECT. The secondary endpoints are Overall Survival (OS), local disease free survival (LDFS) evaluated during a follow-up observation of 6-18 months, time to treatment failure, quality of life and pain evaluation.
Patients randomized to the active arm, after diagnosis and biopsy will be treated with ECT before receiving systemic therapy (Chemotherapy or Hormone Therapy) according to physician's preference. Patients randomized to the control arm, after diagnosis and biopsy will be treated with systemic therapy (Chemotherapy or Hormone Therapy) according to physician's preference. In both arms, the response to treatment will be histologically evaluated qualitatively and quantitatively. Response rate in treated area will be evaluated by RECIST criteria and photographic images.
Descriptive sample size calculation and analyses of Baseline Data. Based on our previous study GISEL study and other studies on breast cancer skin metastasis treated with ECT or other therapies, the hypothesized objective response in active arm has been evaluated at 80%, 25% more than expected in the control arm. Eligible patients will be randomly assigned (1:1) to treatment groups, after stratified randomization by ± radiotherapy after mastectomy and ± syncronous visceral metastases categories, as assessed by clinical examination and histologic evaluation. The number of patients required in each stratified group is 62. A total of 500 patients will be recruited. Subject participation from enrollment through study conclusion is expected to last 18 months.

PO114

METASTATIC BREAST CANCER PATIENTS WHO ACHIEVED CLINICAL COMPLETE RESPONSE AFTER MULTIDISCIPLINARY THERAPY: CLINICAL FEATURES FROM A SINGLE INSTITUTION

Haruko Takuwa, Wakako Tsuji, Fumiaki Yotsumoto
Shiga Medical Center for Adults, Breast Surgery, Moriyama-shi, Japan

Background: The treatment of metastatic breast cancer (MBC) is diversified, and life expectancy of patients could be extended with appropriate treatment. Prognosis of MBC patients is improving as breast cancer treatment develops. Anti-HER2 therapy or small molecule drugs have greatly progressed and that lasts in this 10 years, and some cases obtained clinical complete response (cCR). However, the point at which treatment is terminated after obtaining cCR is not known. Unnecessary treatment should be avoided in cases with an adverse event due to treatment.
Methods: In this retrospective study, 169 MBC patients who receive treatment between 2011 and 2017 at Shiga Medical Center for Adults were investigated. Median follow up period after diagnosis of metastatic breast cancer is 44 months (range; 0–217 months). Tumor characteristics and survival outcome were compared between the patients who achieved cCR and non-cCR. Neutrophil-to-lymphocytes ratio (NLR) from blood samples and Tumor infiltrating lymphocytes (TIL) from specimens before MBC treatment were investigated by physicians and pathologists.
Results: Thirty-one cases (18.3%) including 8 HER2-positive breast cancer patients achieved complete clinical response. In our experience, patients terminated metastatic breast cancer treatment acquired cCR in first or second lines after metastatic diagnosis. A majority of them had multiple metastases sites, but at the most, limited in 2 organs. NLR were significantly lower in cCR group than non-cCR (1.46 ± 0.35 v.s. 2.69 ± 2.16, $p < 0.001$). Patient with low TIL also could aquire cCR, but with multidisciplinary therapy such as local resection.
Conclusions: In achieving cCR without second recurrence, several conditions are needed. The most important facter is appropriate treatment selection. In future, an increase of the number of cCR patients is expected especially in HER 2 positive breast cancer patients. Establishment of stable bio-markers or elucidation of cCR mechanisms are needed.

PO115

A NOVEL AND INNOVATIVE 'NON-TUNNELING' TECHNIQUE OF PORT INSERTION FOR CHEMOTHERAPY INFUSION IN ADVANCE BREAST CANCER PATIENTS: A SINGLE CENTER STUDY IN 130 PATIENTS

Abhinav Deshpande, Abhishekh Jain
Gujarat Cancer and Research Institute, Surgical Oncology, Ahmedabad, India

Introduction: Infusion therapy via a subcutaneously implanted venous port system is an attractive alternative to infusion via peripheral veins, peripherally inserted central catheters or tunneled catheters. We wish to introduce our new and innovative Non-Tunneling technique of chemoport insertion which is less cumbersome and time consuming than the conventional tunneled technique. To the best of our knowledge, no studies have been published which have introduced or explained the Non-Tunneling technique of chemoport insertion till date.
Method: We wish to introduce our new and innovative 'Non Tunneling 'technique of chemoport insertion. A total of 130 patients were inserted chemoports in a duration of 9 months. All the patients were of advanced carcinoma breast indications being neo-adjuvant, adjuvant as well as palliative chemotherapy.
Advantages of our non-tunneling technique over conventional method:

1. Less cumbersome than the conventional technique, in which the puncture needle has to traverse through the skin and subcutaneous tissue. This is important when the patient is obese and has thick subcutaneous tissue layer.
2. There is no need to make the tunnel for the catheter passage which sometime results in bleeding under the skin tunnel.
3. Less time consuming than the conventional technique.
4. Exposure for the puncture for catheter & port placement is better as everything is done from the same incision.
5. In case of inadvertent subclavian artery puncture, the pressure can be applied very close and above the site of artery directly as there is no intervening skin and subcutaneous tissue resulting in less chance of hemothorax due to continuous arterial bleeding.
6. There is only one scar in the infraclavicular region.
7. Complications due to surgical/interventional procedure were as follows: Inadvertent arterial puncture was seen in 10 patients (7.6%) Hematoma and Cardiac arrhythmia was seen in 1 patient (0.7%). None of our patients developed air embolism, pneumothorax, perforation (heart, major vessels) and plexus irritation.

Complications due to catheter related issues were catheter dislocation – 3 patients (2.3%), catheter entrapment ('pinch-off syndrome') – 1 (0.7%), catheter leakage-1(0.7%), catheter thrombosis/occlusion-2 (1.5%), migration or torsion of the port reservoir – 2 (1.5%), infection – 1 (0.7%) and cutaneous necrosis in none. In 2 patients ports had to be removed due to blockage and migration in the chest wall. Vascular complication of left subclavian vein thrombosis – 1 (0.7%).
This Non-Tunneling technique of port insertion is a new and innovative technique which is simpler and easy to acquire. This does not result in complications different or more than the conventional tunneled technique and thus should be done routinely.

PR116

DISCORDANCE OF HORMONE RECEPTOR AND HUMAN EPIDERMAL GROWTH FACTOR RECEPTOR2 AS A PROGNOSTIC FACTOR OF SURVIVAL BETWEEN PRIMARY BREAST CANCER AND RECURRENT BREAST CANCER

Euitae Kim
Dankook University Hospital, Surgery, Cheonan Chungnam, South Korea

Background: The aim of this study was to compare the hormone receptor (HR) and Her2/neu status between primary and metastatic breast cancer and also to evaluate the impact of discordance and other clinicopathologic factors on survival.
Patients and Method: This study retrospectively reviewed 427 recurrent breast cancer patients who were confirmed by histological sampling of loco-regional relapse site from Jan 1999 to Dec 2008. Estrogen receptor (ER), Progesterone receptor (PR) and human epidermal growth factor receptor2 (HER2) assessment were performed on the primary and recurred specimen at the same laboratory.
Result: Discordance rates of ER, PR and HER2 were 15.0%, 30.4% and 17.8% respectively. Concordant positive group of ER had statistically significant better cancer specific survival (CSS) and post-recurrence survival (PRS). Switch of ER or PR from positive to negative resulted worse CSS and PRS. ($p < 0.001$ for ER, $p = 0.003$ for PR) Also PR concordant positive group would expect longer disease free survival (DFS) compare to patients with losing their positivity. But patients who have turned into their subtype from others to triple negative by changing HR and HER2 would have worse PRS compare to patients who did not change their receptor from HR+/Her2-. ($P = 0.004$) A multivariate analysis indicated that ER discordance was an independent prognostic factor for CSS. (HR = 2.6 95% CI).
Conclusion: Estrogen receptor changing from positive to negative is worse prognostic factor for CSS and PRS. And triple negative subtype after recurrence by alteration of HR, HER2 is worse prognostic factor for PRS.

PO117

ELECTROCHEMOTERAPY (ECT) TREATMENT IN-PATIENT WITH BONE FOOT METASTASIS FROM BREAST: A CASE REPORT

Daniele Screpis[1], Stefano Rigotti[1], Gianluca Piovan[1], Stefania Gori[2], Claudio Zorzi[1]
[1] *Sacro Cuore Hospital, Orthopedic Department, Negrar, Italy;*
[2]*Sacro Cuore Hospital, Oncology Department, Negrar, Italy*

Background: Metastatic disease affecting bones is a common disabling complication in breast cancer patients that greatly compromise patients' quality of life. Pain relief is one of the most challenging problems in the management of these patients and surgical and non-surgical treatments are often not sufficient to achieve good results. Electrochemotherapy (ECT) is a mini-invasive therapeutic method based on the combination of electroporation to enhance drug uptake into tumoral cells. ECT is main used in primary and metastatic skin tumors, including cutaneous recurrences form breast cancer. ECT application to bone metastasis is currently gaining acceptance.
Patient and Method: A 59 years old female patient with multiple brain, lung, liver and bone metastases from breast carcinoma was treated with ECT to the tarsal navicular bone of the right foot. The patient had a Karnofsky performance score of 60 with a life expectancy of 15 months according to the Graded Prognostic Assessment (GPA). The patient reported severe pain in the midfoot

during loading from eight months with progressive inability to walk for about six months. The metastatic nature of the lesion was assessed by a biopsy 7 months prior to surgery. After biopsy, the patient received a local radiation therapy that did not lead to an improvement nor clinically neither instrumentally at PET/CT scan. A clinical electroporation device (Cliniporator VITAE, Igea, Carpi, Italy) was used to deliver electroporation pulses to the metastasis. The electrical pulses and the intravenous Bleomycin were administered according ESOPE guidelines. The procedure was performed in spinal anesthesia. A preoperative planning was done using a dedicated software (PULSAR, Igea, Carpi, Italy).
Results: A reduction in pain and an improvement of the functions of the treated segment and of the quality of life was observed at 1 and maintained until the last follow up at 12 months (VAS results and EORTC QLQ-C30). The patient went from forced use of crutches to pain-free unassisted walking after 20 days and she was very satisfied. At x-Rays control 1 month after the treatment an extensive bone remodelling as increased bone density around the lytic lesion was observed. At subsequent follow-up reduction of the lytic area and an increase in perilesional bone tropism with reduction of bone edema was evident. At the 6 and 10 months PET/CT scan there has been a reduction of Standardized Uptake Value to the foot lesion.
Conclusion: ECT is a mini-invasive and selective adjuvant treatment that has shown a very good result in the treatment of navicular bone metastases of the foot from breast cancer. ECT use in the treatment of cancer induced bone disease should be further evaluated to reduce pain and skeletal related events.

PO118

FIVE YEARS OVERALL SURVIVAL OF LOCALLY ADVANCED TRIPLE-NEGATIVE BREAST CANCER IN WEST SUMATERA, INDONESIA

Daan Khambri, Wirsma Arif Harahap
Dr. M. Djamil Hospital, Oncology Division, Padang, Indonesia

Background: Triple-Negative Breast Cancer (TNBC) is a type of cancer that does not express nuclear receptors on ER and PR and also does not express HER2 on immunohistochemical examination. TNBC accounts for approximately 10–15% of breast cancers with poor biological behavior, highly invasive and has a poor prognosis and does not respond to hormonal and anti-HER2 therapy. This study aims to look at the characteristics of Triple-Negative Breast Cancer in West Sumatera – Indonesia.
Methods: We conducted a retrospective study of breast cancer patients recorded in breast cancer registration in Oncology Division of Dr. M. Djamil Hospital from 2012 to 2017 to see the survival. Data was collected for age, histopathology, histopathologic stage, complete therapy, local recurrence, distance metastases, disease-free survival and overall survival. Data were analyzed using kaplan meier and log-rank test.
Results: A total 86 patients with complete therapy were analyzed. Median age at diagnosis was 48 years (range, 28–67 years), where 66 (76.74%) were pre-menopausal patients. Stage 3A was observed in 26 patients (30.23%) and 3B was observed in 60 patients (69.74%). DFS for patient is 66.79 months (95% CI 61.74–71.84) for stage 3A is 69.89 months (95% CI 61.88–77.90) and stage 3B is 60.36 months (95% CI 54.58–66.14). The five years overall survival rates was 68.92 months (95% CI 64.31–73.54) for stage 3A is 69.60 months (95% CI 61.81–77.40) and stage 3B is 63.88 months (95% CI 64.31–73.54), analysis of log-rank test (p = 0.368).
Conclusions: Locally Advanced Triple-Negative Breast Cancer most commonly found in pre-menopausal women in West Sumatera-Indonesia. They are generally comes in stage 3B. The log-rank test of five years overall survival rates shows that complete therapy for Locally Advanced Triple-Negative Breast Cancer can extend the life expectancy of the patients.

PR119

LOCALLY ADVANCED BREAST CANCER IN INDONESIA: PROGNOSTIC AND RESULT OF TREATMENT

Wirsma Arif Harahap
Dr. M. Djamil, Dept. of Surgery, Padang, Indonesia

The aim of this study to know the characteristics of locally advanced breast cancer (stage IIIA and IIIB) treated at referral hospitals in Padang City – Indonesia and the results of the treatment. Data extracted from medical record which included all records of breast cancer registers and pathological specimens (biopsy or mastectomy) collected at three referral hospitals in Padang City from January 1st in 2012 until January 31st in 2017. Data analyzed using survival analysis (Kaplan Meier and Log Rank Test), data analysis using STATA program.
Total of the patients were 292 patients and the average age of was 49.03 ± 9.81 years. The median follow-up was 59 months. All patients treated with modified radical mastectomy and chemotherapy with or without hormonal therapy depend on receptor status. Frequency of young breast cancer in the age <35 years was 9,7%, 35–50 years was 46.8% and post menopause (>50 years) was 43.5%. Subtype of patients with stage of 3A and 3B breast cancer were Luminal A (28.7% and 25.7%), Luminal B (17.8% and 21.5%), HER2 + 3 (27.7% and 22%) and TNBC (25.7% and 30.9%). The 5-year survival rate for, patients with Stage IIIA was 64%, and for patients with Stage IIIB 44%. Disease free survival at stage IIIA was 56.3 months (95% CI 61.05–71.7) and stage IIIB 57.8 months (95% CI 63.8–71.7). Analysis of log rank test (p value 0.852), which means there is no significance difference (HR = 0.93). Based on overall survival at stage IIIA that is 57.7 months (95% CI 63.1–72.2) and stage IIIB 49.5 month (95% CI 66.4–72.5). Analysis of log rank test (p value 0.805), which means there is no significance difference. Breast cancer in Indonesia affects women at least one decade younger than western countries and show advanced cases at first presentation. The result of the treatment was not good. This finding should be give mandate a national cancer detection program involving more effective public education and encouragement of women for breast self-examination and participation in screening campaigns.

PR120

BREAST RECONSTRUCTION IS POSSIBLE IN LOCALLY ADVANCED AND INFLAMMATORY BREAST CANCER

Marisse Venter
Netcare Milpark Breast Care Centre of Excellence, Plastic and Reconstructive Surgery, Johannesburg, South Africa

A third world country requires locally advanced breast cancer reconstruction to be a final aesthetic procedure.
Introduction: In South Africa, a third world country locally advanced breast cancer poses unique reconstructive dilemmas. Due to economic constraints patients are unable to return to theater for completion reconstruction.
Locally advanced breast cancer dictates situations where previously no reconstruction or delayed reconstruction was the norm. Patients were sentenced to emotionally and physically challenging aesthetics results.
In these advanced tumors we use a standardized simple total autologous reconstruction to allow for a final aesthetic result still allowing patients to receive radiation, complete an uninterrupted

chemotherapeutic regimen and have an acceptable cosmetic result with no need to return to theater.
Methods: A single specialist breast care center with a total of nearly 15,000 patients presents a prospective trail of immediate total autologous reconstruction in locally advanced breast cancer. Patients received standardized radiation and Chemotherapeutic regimens.
We present the results of a single reconstructive surgeon performing 207 extended latissimus Dorsi reconstructions over a 3 year period all receiving radiation.
Results: 207 patients with locally advanced and inflammatory breast cancer were operating over a three year period. The average age was 47 years with all patients requiring unit specific standardized chemotherapy and radiotherapy regimens which will be briefly described. The duration of the procedure was 135–165 min, surgical procedure will be discussed addressing caveats in NAC positioning minimizing lateralization, maintain nipple viability in nipple sparing mastectomies. The average weight of the latissimus Dorsi muscle was 340 g. An inferior pedicel opposite side matching procedure provided the best aesthetic result. The majority of patients had breast access incision via wise pattern reconstruction, 10 peri areole and 5 vertical access incisions were used. All muscles were raised via a vertical incision. The failure rate was 2/207, patients received taxotere, and pearls will be discussed. Fat necrosis following radiation will be discussed and found to be a minimum, revolutionary for autologous reconstructions and important with the increased global indications for radiation. Breast Q was administrated to all patients and results will be discussed.
Conclusion: Aesthetic breast reconstruction is possible in locally advanced and inflammatory beast cancer. The extended latissimus dorsi flap allows an aesthetic reconstruction in a third world country limited by financial constraints allowing radiation with minimal or no compilations and no delay in treatment protocols.

Clinical Issues: Supportive and Palliative Care

PO121

A RETROSPECTIVE COHORT STUDY TO INVESTIGATE ASSOCIATION BETWEEN PREFERENCES FOR FUTURE CARE AND PERIOD OF FINAL CHEMOTHERAPY ADMINISTRATION BEFORE END-OF-LIFE

Sena Yamamoto[3,1], Keiko Eguchi[3], Utako Kato[3], Daisuke Yotsumoto[2], Akira Kitani[2], Yoshiaki Rai[2], Yoshiaki Sagara[2], Yasuaki Sagara[2,1]
[1]Social Medical Cooperation Hakuaikai, Clinical Research Center, Kagoshima, Japan; [2]Social Medical Cooperation Hakuaikai, Sagara Hospital, Department of Breast Oncology, Kagoshima, Japan; [3]Social Medical Cooperation Hakuaikai, Sagara Hospital, Department of Nursing, Kagoshima, Japan

Purpose: The period of final chemotherapy administration has been considered as a quality indicator of palliative care for patients with terminally ill cancer. Decision support for the withdrawal of chemotherapy needs to be a part of Advance Care Planning (ACP). This study aims to explore association between patient preferences for future care and the period of final chemotherapy before end-of-life.
Methods: We have developed a self-administered questionnaire regarding patient preferences for future care as a discussion tool for ACP. Participants were women who have received chemotherapy for metastatic breast cancer (MBC) and used our ACP questionnaire. The information of date of final chemotherapy administration and death was collected from a database of electronic records and chemotherapy schedules at our hospital. Patient preferences included: Value towards treatment and chemotherapy (both 3 items), expectations to treatment (3 items), and preference for discussion including life expectancy (1 item). Participants evaluated all items on a 5-point Likert scale. Spearman's rank correlation coefficients were used to examine the relation between the response to the questionnaire and the final administration period of chemotherapy.
Results: Among 199 patients who responded the questionnaire, 64 patients died from MBC between February 2013 and June 2016. They answered the questionnaire at a median of 7.5 months before death (Interquartile range: 4.8–16.3). The median period from final chemotherapy administration to death was 70 days (Interquartile range: 52.8–156.5). No one received chemotherapy within 14 days of death. The numbers of chemotherapy within 30 and 60 days of death were 4 (6.3%) and 24 (37.5%), respectively. Patients with more expectations for cure ($\rho = -0.289$, $p = 0.022$) and life extension ($\rho = -0.343$, $p = 0.006$) continued chemotherapy at later date. Patients who wanted to receive cytotoxic therapy regardless of low possibility of its therapeutic effects also received chemotherapy later ($\rho = -0.260$, $p = 0.043$). On the other hand, patients who wanted to experience the side effects as little as possible terminated to receive chemotherapy earlier ($\rho = 0.332$, $p = 0.008$).
Conclusion: After the introduction of ACP questionnaire, use of chemotherapy near end-of-life has decreased at our hospital. The period of final chemotherapy before death of patients was significantly associated with patients' expectations to cure and life extension, their value towards chemotherapy and the side effects. ACP for end-of-life may contribute to offer the optimal withdrawal period of receiving final chemotherapy for the patients with MBC.

PO122

ADVANCED STAGE BREAST CANCER LIFESTYLE AND EXERCISE (ABLE) FEASIBILITY STUDY: PRELIMINARY RESULTS

Lidia Delrieu[6,5], Olivia Perol[5], Christine Friedenreich[1,8], Olivia Febvey[5], Agnès Martin[6], Béatrice Fervers[5,3], Thomas Bachelot[4], Armelle Dufresne[4], Pierre-Etienne Heudel[4], Olivier Trédan[4], Marina Touillaud[5,3], Vincent Pialoux[6,2]
[1]CancerControl Alberta, Alberta Health Services, Department of Cancer Epidemiology and Prevention Research, Calgary, Canada; [2]Institut Universitaire de France, Institut Universitaire de France, Paris, France; [3]Léon Bérard Cancer Center, Cancer Research Centre of Lyon UMR Inserm 1052 CNRS 5286, Lyon, France; [4]Léon Bérard Cancer Center, Department of Medical Oncology, Lyon, France; [5]Léon Bérard Cancer Center, Department of Cancer and Environment, Lyon, France; [6]University Claude Bernard Lyon 1, Inter-University Laboratory of Human Movement Biology, Villeurbanne, France; [7]University Claude Bernard Lyon 1, Faculty Lyon Est, Villeurbanne, France; [8]University of Calgary, Cumming School of Medicine, Departments of Oncology and Community Health Sciences, Calgary, Canada

Background: About 5% of breast cancers are metastatic (MBC) at diagnosis and 20–30% of localized breast cancer become secondarily metastatic. Recent therapeutic advances have increased the median 5-year survival from 2 to 3 years to ~25%. However, patients still suffer from many detrimental symptoms related to metastasis and treatments. To date, only four intervention studies worldwide have focused on PA interventions in MBC patients. The ABLE cohort study is designed to assess the feasibility of a six-month PA intervention in women with MBC and examine the effects of PA on physical, biological, psychological and clinical parameters.
Methods: A cohort of 60 newly diagnosed MBC patients is being recruited from October 2016 in Lyon, France and provided an unsupervised and personalized six -month PA program. At baseline

and 6 months, the following assessments are made: Anthropometric measurements (weight, hip and waist circumferences), functional tests (six-min walk test [6MWT] with VO2 peak, upper limb strength by handgrip and maximum isometric strength of quadriceps extension), biological assays (inflammation and oxidative stress), questionnaires (PA by IPAQ, quality of life by EORTC-QLQ-C30 and BR-23, fatigue by Piper scale, social deprivation by EPICES score, barriers and facilitators to PA by qualitative questionnaire) and clinical markers of tumor progression (RECIST criteria). Patients wear a PA tracker which serves both as a tool to record their own behaviour and maintain exercise adherence.
Data at inclusion: During the first six months we have recruited 32 patients out of 35 eligible patients (92% recruitment rate) At baseline, median study participants' age is 56 years [IQR 49–62] and their BMI is 25.3 kg/m^2 [21.7–28.9]. The median distance during 6MWT was 465 m [433–518], with VO2 peak at 20.0 mL/min/kg [15.0–23.0]. The gripping force was 24.8 kg [22.9–29.1] and the median extension force of the quadriceps was 18.2 kg [13.0–23.4]. The score of the PA questionnaire was 1507 MET-min/wk [608–2784]. The overall score of fatigue is 3.9 [1.9–5.1], the overall quality of life is 66.7 [50.0–81.2] and the social deprivation is 21.8 [7.4–37.9].
Conclusion: The high recruitment rate shows the willingness of MBC patients to participate in this type of program. ABLE patients are overweight, moderately active and have a high fatigue and a degraded quality of life. Those preliminary data confirmed the need and desire of a PA intervention in the MBC population. This unsupervised PA program may encourage patients to maintain a long term physically active lifestyle.
Study funded by the National Cancer League and Activ'Ra. Study approved by French Ethics Committee (A16-380). Registered on clinicaltrials.gov (NCT03148886).

PO123

LEAVING A LEGACY: HALF DAY RETREAT FOR YOUNG WOMEN LIVING WITH METASTATIC BREAST CANCER

Mary Ajango, Maggie Nicholas-Alexander, Michelle Esser, Megan McCann, Medha Sutliff, Jean Rowe
Young Survival Coalition, National Programs Dept., New York, USA

Background: Young women diagnosed with metastatic breast cancer (YWMBC) face distinct concerns. Young Survival Coalition (YSC) is the premier organization dedicated to young women affected by all stages of breast cancer. Results of a 2013–14 survey to YSC's metastatic constituency completed by 360 YWMBC showed this population believed tools to help them communicate about their disease and prognosis would be helpful (76%). This included a desire for legacy tools such as a video project (57%), letter templates (55%), scrapbooking templates (51%) and blog templates (40%).
Methods: Based on these survey results, YSC decided that creating the opportunity for YWMBC to leave a legacy was important. YSC offered 'Leaving a Legacy: Half Day Retreat for YWMBC' onsite at its 2017 Summit in Oakland, California. In this dynamic three hour session, participants learned what it means to leave a unique legacy, received in-depth information on artistic and letter-writing legacy projects, as well as the opportunity to network and share their own legacy ideas. Co-survivors could attend as well.
Results: One hundred thirty-three Summit registrants, or 24.5%, had MBC. Over 60 YWMBC, some accompanied by a co-survivor, attended this half-day retreat at the start of the Summit. An evaluation sent to participants received 23 responses.
In this evaluation, YSC asked the extent to which the retreat gave respondents the resources/tools they were looking for regarding leaving their personal legacy. Twenty-two percent (22%) said to a 'great extent,' 39% said to a 'moderate extent' and 39% said to a 'small extent.' YSC also asked whether respondents left the retreat with ideas/projects for leaving their legacy. Seventy-eight percent said 'yes.' Additionally, they were asked the open-ended question, 'What did you like about the retreat?' Respondents liked being able to connect with other survivors, especially other women with MBC. 'It was nice to be in the same room with other stage IV survivors.' Opinions differed however, over whether the retreat fit best at the beginning of the Summit or would have been better later in the weekend. Other aspects of the retreat respondents liked included the letter writing portion and the open discussion piece. Suggestions for improvement included 'more concrete skills and tools taught and demonstrated' as well as actual completed takeaways.
Conclusion: YSC's 'Leaving a Legacy' half-day retreat provided an opportunity for YWMBC to learn and participate in ways to create a legacy for those they will leave behind. The session was well-attended and generally well-received. YSC will examine ways in which the session could be improved to meet the needs of this unique population.

PR124

IMPACT OF SUPPORT GROUP INTERVENTION ON THE QUALITY OF LIFE OF PATIENTS WITH ADVANCED BREAST CANCER

Vitalis Okwor
University of Nigeria Teaching Hospital, Enugu, Radiation Medicine, Enugu, Nigeria

Background: Health-related quality of life is an important end point in breast cancer care. Assessing quality of life in breast cancer patients could contribute to improved treatment outcome and could even serve as monitor along with medical parameters. The need for psychosocial support is well established among breast cancer patients with levels of psychological distress and depression, particularly after diagnosis and treatment. Emotional and social support with educational information on cancer, nutritional needs, exercise and the need for regular follow up in breast cancer care have been noticed to improve the outcome of treatment. Cancer support helps patients to cope with cancer by adjusting their attitudes, knowledge, and expectation about the disease.
Objective: To determine the impact of support group intervention on quality of life of patients with advanced breast cancer
Methodology: A system breast cancer support group that organises a two month period meeting for all breast patients in University of Nigeria Teaching Hospital, Enugu was used to gather the patients. Educational information on breast cancer, nutritional needs, exercise and the need for regular follow up in breast cancer care were given to them as well as the means of overcoming the psychosocial burden in cancer. A one on one quality of life assessment on selected patients with advanced breast cancer using WHO BREF was administered.
Result: A total of 113 breast cancer women were recruited for this study. At the end of the intervention, 14 women (12.4%) were censored due to death, while post assessment was carried out for only 99 women. Post intervention analysis showed that there was a significant positive correlation between availability of social support to respondents (FS score) and the four quality of life domains ($p < 0.05$). Further analysis also showed that respondents' quality of life significantly increased across all domains at post intervention ($p < 0.05$).
Conclusion: Patients receiving support group intervention all had improved quality of life.

PO125

THE INFORMATION AND SUPPORT NEEDS OF WOMEN WITH METASTATIC BREAST CANCER WHO HAVE DEPENDANT AGED CHILDREN: A STUDY TO INFORM SERVICE DEVELOPMENT TO SUPPORT WOMEN TALK WITH AND PREPARE THEIR CHILDREN

Maria Leadbeater
Chesterfield Royal Hospital, Macmillan Cancer Centre, Calow, UK

Women with metastatic breast cancer (mbc) face a limited life expectancy, the reality they will probably die before their children are independent and the task of explaining to children that their cancer has recurred and what this means. Research has demonstrated the main concern for younger women with mbc was for their children and talking about illness, dying and trying to prepare children are difficult issues but understanding women's needs can help health care professionals (hcp) improve support.

Using an on-line survey available on the mbc discussion forums on Breast Cancer Care's website, eight women were recruited over five days and shared their experience.

The study demonstrated the majority of women had asked their hcp for advice on talking to children but were not satisfied with the support and information. Women who had not asked their hcp for advice gave the reasons as either timing, in that their child was too young or there was no expectation any information would be given.

The average time since the women's diagnosis of mbc varied from two months to four years. 37.5% (3) of the women had one child with 62.5% (5) having 2 or more children. The twelve children's ages varied from junior school ages (8–11 yrs) to teenagers.

75% (6) of women described what their children understood about their illness and the children's understanding appeared to be age dependant, with mid to late teenage children having a good understanding or 'understands as much as an adult'. Mothers of younger children, gave concerning replies such as explaining their child 'worries she (mother) was going to die' and one woman felt the child 'pretends its not happening'. The women diagnosed several years ago gave explanations that may suggest some degree of adaptation.

87.5% (7) wrote what their children needs were now and in the future, with the main theme being someone for their child to talk with. 25% (2) also stated the opportunity of someone to talk with would be needed after their death.

Parents need support in preparation of having difficult conversations with children and also in appreciating they may be the person who know best what their children and family need. Preparing a Child for Loss (Macmillan 2015) is a useful resource to offer and start discussion. However, to support parents with mbc, health professionals need an understanding of child development, models of loss as well as a knowledge of local services and resources. This area of work will always be a difficult area but providing support and information for parents can provide the potential for immediate and long lasting support for the whole family.

PO126

QUALITY OF LIFE AND PSYCHOSOCIAL NEED OF METASTATIC BREAST CANCER PATIENTS

Tahir Mehmood
Shaukat Khanum Memorial Cancer Hospital and Research Centre, Radiation Oncology, Lahore, Pakistan

Objective: Review prior literature and patient survey reports related to metastatic breast cancer (MBC) patients' quality of life (QoL) needs, and assess extent to which local organizations are meeting them.

Methods: (1) Research findings of >150 published, peer-reviewed research articles including quantitative and qualitative studies of MBC patients and their families, were summarized around the realities of living with MBC. (2) 13 surveys of ~8,000 MBC patients were examined for common concerns. (3) Desk research analysis of leading nonprofits' patient advocacy, research, education and support (n = 16); and interviews with leadership about services for patients (n = 16).

Results: The extensive research base around MBC QoL issues was summarized into 6 categories: Psychosocial distress; emotional support; information about the disease, its treatment, and resources; communication and decision making about care; relief of physical symptoms; and practical concerns. Sources of emotional support, individual and group psychotherapy, and counseling, as well as adequate information about the disease, its treatments, and methods to alleviate symptoms and side effects have been shown to be useful in helping patients cope with MBC. However, patients are typically not well informed in areas required for decision making about their care, and patient–clinician communication can be difficult. MBC symptoms and side effects of continuous treatment – fatigue, sleeping difficulties, and pain – and emotional distress interfere with daily life; supportive and palliative care is often insufficient. While the majority of the major local breast cancer advocate organizations focus on meeting the support needs of the breast cancer community, not enough attention is paid to the MBC patient population. Gaps in information include lack of detailed information on latest treatments, QoL, palliation, communication with health care providers, and advanced directives and end-of-life care.

Conclusions: While QoL issues for MBC patients/caregivers are well understood, the resources and commitment to address these issues are still lacking. Targeted information and support services addressing QoL needs are as necessary to patients as medical treatments.

PO127

PALLIATIVE CARE IN EGYPT: CHALLENGES AND OPPORTUNITIES

Mohamed Hablas
Gharbia Cancer Society, Medical Oncology & Palliative Care, Tanta, Egypt

Background and Context: The need for palliative care in middle and low resources countries, including Egypt, is emerging. The Gharbiah Cancer Society (GCS) is a nonprofit, nongovernmental hospital, located in Tanta, the Capital of the Gharbiah governorate in the mid-Nile Delta. The Society provides acute care to patients with cancer including surgery, chemo-, and radiotherapy. Review of 9 year-data of Gharbiah population-based cancer registry from 1999 to 2007 revealed 3480 cancer cases/year, with Age Standardized Rate (ASR) of 161.7/100,000 for males & 120.8/100.000 for females.

Aim: About 70% of cases present in advanced stages (III&IV) with liver cancer the most frequent cancer in male and breast cancer as the most frequent cancer in females. The GCS started a comprehensive palliative care services in April 2011 with 10-bed inpatient unit and 6 days/week outpatient clinic. All palliative care equipment were provided by public donations.

Strategy/Tactics: Through collaboration with National Cancer Institute, Bethesda, Maryland and the San Diego Hospice and the Institute for Palliative Medicine and Middle East Cancer Consortium, a fellowship training program was developed for a

medical oncologist in palliative medicine and End-of-Life Care training course for nurses.
Programme/Policy Process: The program succeeded in convincing local health authorities to increase the recommended opioids dose and to allow more physicians to prescribe opioids for cancer pain. In a period of 24 months, symptom management and palliative care were provided to 195 patients with advanced malignancies. The opioids consumption was increased by 30 folds.
Outcomes/What was learned: The Major challenges for the program were inadequate public and health professionals awareness of palliative care services and lack of vehicles and finances to cover home visits. The initial results of the program warrant allocating more resources for coverage of a large number of trainees and instituting a home visits program.

PO128

G-CSF AND G-CSF BIOSIMILARS: A META-ANALYSIS OF RANDOMIZED CLINICAL TRIALS IN BREAST CANCER PATIENTS UNDERGOING MYELOSUPPRESSIVE CHEMOTHERAPY

Giuseppe Curigliano[1], Edoardo Botteri[3], Andriy Krendyukov[2]
[1]European Institute of Oncology, Division of Experimental Therapeutics, Milan, Italy; [2]Hexal AG, (Hexal AG), Holzkirchen, Germany; [3]Oslo University Hospital, Women and Children's Division, Norwegian National Advisory Unit on Women's Health, Oslo, Norway

Background: Granulocyte colony-stimulating factors (G-CSFs) are widely used to prevent neutropenia in cancer patients undergoing myelosuppressive chemotherapy. Several biosimilars of G-CSF are now available. Development of biosimilars involves a step-wise approach to demonstrate similarity to the reference product including structural and functional characterisation, and clinical assessment of pharmacokinetics, pharmacodynamics, safety and immunogenicity. Randomized clinical trials (RCTs) are then considered confirmatory and performed to eliminate any remaining uncertainties between the reference and biosimilar. However some heterogeneity exists between studies. For G-CSF biosimilars, patients with breast cancer (BC) undergoing myelosuppressive chemotherapy are the most sensitive population in which to confirm similarity. The aim of this meta-analysis was to compare the clinical efficacy of approved or proposed G-CSF biosimilars (filgrastim or pegfilgrastim) with reference G-CSF in patients with BC. To the best of our knowledge this is the first meta-analysis of G-CSF biosimilars that focuses on BC studies.
Methods: A Medline literature search up to March 2017 identified randomized clinical trials (RCTs) comparing biosimilar G-CSF to reference in BC patients, including those with advanced BC. The primary efficacy endpoint was mean difference in duration of severe neutropenia (DSN). Secondary efficacy endpoints were differences in depth of absolute neutrophil count (ANC) nadir, time to ANC recovery and incidence of febrile neutropenia (FN). Random effect models were fitted to obtain the pooled estimates of the mean difference for continuous outcomes and the risk ratio for dichotomous outcomes, and their corresponding 95% confidence intervals (CIs).
Results: Eight eligible RCTs were included in this meta-analysis. Overall difference in DSN between reference and biosimilar medicines was not statistically significant (0.06 days [95% CI −0.05, 0.17]). ANC depth (0.03 109/litre [95% CI −0.04, 0.09]), time to ANC recovery (−0.01 days [95% CI −0.13, 0.12]) and FN (risk ratio 0.98 [95% CI 0.69, 1.38]) also showed no significant differences between reference and biosimilars.
Conclusions: This meta-analysis showed no differences in clinical efficacy between biosimilar and reference G-CSF in breast cancer patients.

PO129

MUSCULOSKELETAL PAIN AND HEALTH-RELATED QUALITY OF LIFE AMONG BREAST CANCER PATIENTS: EVIDENCE FROM SOUTH INDIA

Asmin Sha
Al Iqbal Hospital, Pathology Dept., Thrissur, India

Introduction: The musculoskeletal pain is one of the leading health problems among women. This study aims to examine the associations between musculoskeletal pain and health-related quality of life (HR-QOL) among breast cancer patients and women without a history of breast cancer.
Methods: A cross-sectional study was conducted among 77 breast cancer patients for an average of 3.5 years and 168 postmenopausal women without a history of cancer. Musculoskeletal pain was assessed using a 10-cm visual analog scale; HR-QOL was examined using the Medical Outcomes Study Short Form (SF-36) health survey. Linear regression was used to estimate the associations between pain and HR-QOL in both groups.
Results: Approximately 64% of the breast cancer patients and women in the comparison group reported musculoskeletal pain. Among women with breast cancer, those with pain had significantly lower HR-QOL scores in the physical (52.2 vs. 42.6; $p < 0.001$) and mental (52.7 vs. 45.5; $p = 0.01$) component summary scores compared with those without pain. In the comparison group, pain was associated with significantly lower scores in the physical (55.4 vs. 46.0; $p < 0.001$), but not the mental, component summary score (52.1 vs. 52.4; $p = 0.82$). The significant associations between pain and HR-QOL persisted after confounder adjustment in both groups. Among women with similar severity of pain, breast cancer patients reported significantly lower HR-QOL in the mental summary component compared with the women in the comparison group.
Conclusions: Among breast cancer patients, musculoskeletal pain adversely affects both mental and physical components of HR-QOL. Preventing or treating musculoskeletal pain may improve overall HR-QOL among breast cancer patients.

PO130

UTILIZATION OF INTEGRATIVE SUPPORTIVE SERVICES IN A SPECIALIZED ADVANCED BREAST CANCER CENTER

Timothy J. Pluard, Andrea P. Watson, Elizabeth A. Anderson, Mackenzie M. Messina, Andrea Swan, Savannah J. Geske, Beringia M. Zen, Katherine E. Ambrosier, Rhonda L. Johnson
Saint Luke's Cancer Institute, Koontz Center for Advanced Breast Cancer, Kansas City, USA

Background: Advanced breast cancer (ABC) patients frequently lack access to integrative services available to newly diagnosed patients. Saint Luke's Cancer Institute Koontz Center for Advanced Breast Cancer has adopted an integrative treatment model designed to meet specific needs of advanced breast cancer patients. This patient-centered multidisciplinary approach provides physical, social, psychological, nutritional and spiritual support in tandem with traditional cancer treatment.
Methods: Patients who call to schedule their first appointment learn they will see multiple providers. During that first visit, the patient meets first with the physician. Psychology and physical therapy providers then complete a 45-minute assessment, while nutrition, social work and chaplaincy see the patient for 30-minute evaluations All team members meet when assessments are complete to provide feedback and treatment suggestions. This information is incorporated into a detailed treatment plan that is

shared with the patient during a final meeting. Other family member have the option to attend via teleconference. A video recording of the entire consultation is provided to the patient
Results: The Koontz Center began operation in October 2016. As of May 2017, 89 new patients have presented for evaluation. All new patients were female with median age 55 (range 33–84). Twenty percent saw all providers on their first visit. Another fifty percent of patients were evaluated by at least one member of the integrative team during their first clinic appointment (13.48% nutrition; 16.85% physical therapy; 12.4% psychology; 11.24% social work; 5.61% spirituality). Subsequent ongoing utilization of at least one integrative service was 48% for all patients: Nutrition 23%; Behavioral Health 16%; Physical therapy 16%; Social work 15%.
Conclusion: It is feasible to provide integrated comprehensive care for women with advanced breast cancer. More than two-thirds of patients will access a supportive service provider on their initial clinic visit. Nearly half of women will continue utilizing supportive services during ongoing treatment. The integrated provision of supportive services is clearly needed in women with advanced breast cancer.

PO131

PREDICTIVE FACTORS FOR PERSISTENT PAIN IN PATIENTS WITH ADVANCED BREAST CANCER RECEIVING ADJUVANT THERAPY

Teodora Alexa-Stratulat[1,2], Georgiana Olteanu[2], Lucian Miron[2,1]
[1]Regional Institute of Oncology, Medical Oncology Dept, Iasi, Romania; [2]University of Medicine and Pharmacy 'Gr. T. Popa', Medical Oncology-Radiotherapy, Iasi, Romania

Introduction: As the number of advanced breast cancer (ABC) survivors increases due to improved therapy options, chronic side-effects from oncology treatments are emerging as an important issue in cancer management. Chronic pain is one of the most frequent symptoms in cancer survivors and current treatments are not always effective. The aim of the study was to assess factors that predict or correlate with persistent pain in patients with ABC.
Material and Method: Between 01.06.2016 and 30.01.2017, we enrolled 100 consecutive ABC patients that had undergone breast cancer surgery and were receiving adjuvant treatment (chemotherapy, hormone therapy or targeted therapy) in the Medical Oncology Department of the Regional Institute of Oncology Iași. All patients were assessed in terms of pain intensity and characteristics. Data about medical history, tumor type and treatment were collected in order to identify factors that correlate with persistent pain.
Results: 81% of the responders were experiencing pain at the time of the interview. Pain intensity ranged from one to ten on the visual analog scale, with a median of three. 29% of the patients were on prescription analgesic drugs, most often NSAIDs or Tramadol. 18% were treating their pain by means of alternative medicine (plant-derived products, physical therapy, massage or meditation). In the subgroup receiving prescription analgesics, the patients rated the efficacy of their pain treatment between 40% and 100%. 57 of the patients were considered to have persistent pain. This subgroup included all patients that had experienced pain for more than 12 weeks and either rated its intensity as three or more on the visual analog scale or were receiving chronic pain medication.
Persistent pain was correlated with the presence of acute post-operatory pain, radical surgery, post-operatory lymphedema, neoadjuvant chemotherapy, number of chemotherapy cycles and experiencing sleeping difficulties. Neuropathic pain was more frequent in the persistent pain group. Age, menopausal status, targeted therapy and the number of births did not correlate with the presence of persistent pain.
Conclusions: Persistent pain is quite frequent in women with ABC undergoing multimodal anticancer treatment. Radical surgery, lymphedema and sleeping difficulties are associated with a higher probability of persistent pain. The number of chemotherapy cycles correlated with persistent pain. Physicians should take the probability of developing chronic pain into account when deciding on the treatment, because it significantly influences the quality of life.

PO132

EVALUATION OF HEALTH-RELATED QUALITY OF LIFE VIA THE COMPUTER-BASED HEALTH EVALUATION SYSTEM (CHES) FOR JAPANESE METASTATIC BREAST CANCER PATIENTS: A SINGLE-CENTER PILOT STUDY

Yuichiro Kikawa[3], Yukimasa Hatachi[4], Gerhard Rumpold[5,1], Mariko Tokiwa[3], Sayaka Takebe[3], Takatsugu Ogata[4], Hironaga Satake[4], Hironori Kato[3], Akihito Tsuji[2], Hisateru Yasui[4], Bernhard Holzner[5,1]
[1]Evaluation Software Development, www.ches.pro, Rum, Austria; [2]Kagawa University Faculty of Medicine, Department of Medical Oncology, Kita-gun, Japan; [3]Kobe City Medical Center General Hospital, Department of Breast Surgery, Kobe-City, Japan; [4]Kobe City Medical Center General Hospital, Department of Medical Oncology, Kobe-City, Japan; [5]Psychotherapy and Psychosomatic Medicine Medical University of Innsbruck, Department of Psychiatry, Innsbruck, Austria

Background: Metastatic breast cancer (MBC) is basically an incurable disease. The main purposes of treatment are to prolong survival and to maintain health-related quality of life (HRQOL). Regarding the assessment of HRQOL, there are two crucial problems. First, physician ratings frequently underestimate the patient's real symptom burden. Second, compliance with assessment can be poor, particularly in patients with long-term treatment. One possible solution to overcoming these problems is the electronic data capture of patient reported outcomes and real-time home monitoring by means of the patient's tablet computer, mobile phone or PC. The objective of this study was to investigate compliance with HRQOL monitoring from home among MBC patients using a software package called CHES.
Patients and Methods: CHES is a platform that electronically collects patient questionnaires developed by the European Organization for Research and Treatment of Cancer (EORTC) QOL group. In this pilot study, we used a Japanese version jointly developed with the EORTC QLG. Between November 2016 and January 2017, MBC patients who received chemotherapy or endocrine therapy at the out-patient unit of Kobe Medical Center General Hospital were recruited. One eligibility criterion was the availability of an electronic device connected to the internet. We asked patients to enter HRQOL from their own device at home via CHES every week for 12 weeks. The EORTC Quality of Life Questionnaire-Core 30 (EORTC QLQ C-30) was used to evaluate HRQOL. The primary endpoint was the questionnaire collection rate. Secondary endpoints were the rate of patients who showed a minimally important difference (MID) score, defined as a 10-point decline in the Global Health Status score, and time to deterioration (TTD).
Results: Sixteen patients were enrolled in this study. Median age was 58 years (range 38–70 years). Nine patients (56%) were treated with chemotherapy and seven (44%) with endocrine therapy. At the start of the survey, nine patients (56%) had an ECOG performance status (PS) of 0, while five (31%) and two (13%) had a PS of 1 and 2, respectively. Median questionnaire

collection rate for the total of 12 weeks was 84.6% (IQR, 44.3–100). The main reasons for missing data were forgetting, worsening of disease and device malfunction. The number of patients who experienced MID was eight and the median time to deterioration was 30 days (95%CI, 7.7–52.3).
Conclusions: Compliance with electronic HRQOL data collection in this cohort was acceptable. We plan a prospective study to determine whether the use of electronic real-time feedback of HRQOL results (by means of CHES) improves patient-physician communication and patient's overall HRQOL.

PO133

EXPLORING SUPPORT NETWORKS AND QUALITY OF LIFE OF METASTATIC BREAST CANCER PATIENT IN NIGERIA AND TURKEY

Runcie Chikeruba Wilson Chidebe[2], Ebru Tontas[1], Charles Tochukwu Orjiako[4], Ernest Ike Onyishi[3,4]
[1]Kanserle Dans Dernegi, Palliative Care, Istanbul, Turkey; [2]Project PINK BLUE Health & Psychological Trust Centre, Patient Advocacy & Research, Abuja, Nigeria; [3]University of Muenster, Germany and University of Nigeria, Nsukka, Nigeria, Department of Psychology, Muenster, Germany; [4]University of Nigeria Nsukka, Department of Psychology, Enugu State, Nigeria

Objective: Metastatic breast cancer (MBC) is now a critical issue in breast health, as over 70% of the breast cancer patients present late stages (III & IV) with few patients having access to palliative care needs, treatment facilities and information in Nigeria. Studies have consistently explored the effects of different psychosocial interventions in improving the quality of life of cancer patients at different stages of breast cancer, very few studies looked at metastatic breast cancer. This study explores support networks, such as, NGO support programmes, metastatic breast cancer support group, family, government and faith-based support in improving the quality of life of women living with metastatic breast cancer in Nigeria and Turkey.
To examine which of the different support networks are perceived by MBC patients to be more effective in improving their quality of life, we utilized the Union for International Cancer Control (UICC) SPARC metastatic breast cancer project in Turkey and Nigeria. The study attempts to explore and understand the available and the most effective support networks for mitigating the pains of women living with metastatic breast cancer, including disclosure issues and how to better provide a more significantly improved support and palliative care.
Method: The study will survey 100 metastatic breast cancer patients in Nigeria and Turkey that are covered in the Union for International Cancer Control (UICC) SPARC metastatic breast cancer project. A questionnaire will be developed to assess the available support networks for MBC patients and the level of patients' satisfaction with the identified support networks. The 16-item McGill Quality of Life questionnaire will be used to assessed patient QOL. Descriptive statistics (percentages and graphs) will be used to present data relating to frequency of support while regression analysis will be used to test for the relationship among support networks, satisfaction and quality of life.
Implications of Results: The results of the study will help in understanding the available support networks for metastatic breast cancer patients in Nigeria and Turkey. The study will also provide useful information on the efficacy of the available support networks in meeting patients' expectations of care in the two countries. In addition, the results of the study will provide empirical evidence for the link between support networks and satisfaction with care, and quality of life of MBC patients. The findings are expected to have implications for effective management of MBC patients and provide insight for future research in the area.

PO134

HOMESTATIC CORRELATIONS IN PATIENTS WITH BREAST AND OVARIAN CANCER

Elina Beleva[1,3], Tanya Deneva[2], Snejana Stoencheva[2], Vesselin Popov[1], Cvetelina Peicheva[3], Mariana Valcheva[3], Antoaneta Georgieva[3], Ivanka Nenova[1,3], Janet Grudeva[1,3]
[1]Medical University, Plovdiv, Clinical Oncology, Medical Faculty, Plovdiv, Bulgaria; [2]Medical University, Plovdiv, Clinical Laboratory, Faculty of Pharmacy, Plovdiv, Bulgaria; [3]University Hospital 'Sveti Georgi', Clinic of Medical Oncology, Plovdiv, Bulgaria

Introduction: Prothrombotic tendency is characteristic of solid tumors. However, the rate of thrombotic complications is largely dependent on the primary tumor site. Clinically breast cancer is associated with lower thromboembolic risk as compared to other cancers such as lung cancer or gynecologic tumors.
Aim of this study was to compare hemostatic parameters – procoagulant activity of microparticles (MP-TF), tissue factor antigen (TFAg), soluble urokinase activator receptor (suPAR) and angiopoietin-2 (ANG2) between patients with breast and ovarian cancer.
Methods: MPTF, TFAg, suPAR, ANG-2, CA15-3 and CA125 were measured in 44 breast and 20 ovarian cancer patients treated at a single oncology unit. Patients were tested at chemotherapy initiation and sequentially. TFAg, ANG-2 and suPAR were measured by ELISA, MPTF – by immunochromogenic assay. Written informed consent was obtained by all study participants.
Results: No significant difference was found between breast and ovarian cancer patients for all tested parameters. However, significant correlations were found for the CA 15-3 tumor marker and MP procoagulant activity ($\rho = 0.305$), TFAg ($\rho = -0.267$) and ANG-2 ($\rho = -0{,}29$). For CA125 significant correlation was determined only in regard to MPTF activity ($\rho = -0.343$), which was negative compared to the positive direction found in breast cancer. No relationship was found for suPAR and either of the tumor markers.
Conclusion: Based on the findings it might be suggested that even though there is low clinical propensity to thrombosis in breast cancer, subtle changes in hemostatic system occur or possibly a different pattern of hemostatic dysregulation is present.

Clinical Issues: Other Topics

OR135

EFFECT OF EXERCISE ON CARDIOVASCULAR FITNESS AND QUALITY OF LIFE OUTCOMES IN ADVANCED BREAST CANCER PATIENTS

Eduardo Oliveira, Jose Soares, Andre Seabra, Sofia Magalhaes, Sara Oliveira, Diana Carvalho, Maria Joao Cardoso
Mama Help, Physical Exercise, Porto, Portugal

With 1.3 million new breast cancer cases reported every year and improved survival, it is important to develop interventions to maintain quality of life (QOL) during and after cancer treatment. Aerobic and strength training is an intervention that can enhance QOL and physical components during treatment. However, regarding metastatic breast cancer, there are few interventions regarding physical exercise and quality of life outcomes.
Purpose: To examine the effect of 12 weeks of supervised exercise in physical capacity measurement, strength and QOL in advanced breast cancer patients during treatment compared to a control group.

Methods: Fifteen cancer patients aged 34 to 68 years were allocated to a multidimensional exercise intervention program (n = 8) and to a control group that received standard care (n = 7). The intervention comprised cardiovascular training at 60–80% of VO2max in cycle ergometer, resistance training with body weight, and specific rehabilitation arm exercises. The patients trained during 60 minutes, twice a week, during 12 weeks. Physical capacity (VO2max), and health related quality of life were assessed pre- and post intervention. Health related quality of life was assessed by the European Organization for Research and Treatment of Cancer (EORTC QLQ-C30). General linear model for repeated measures was used to compare (baseline and 12-week follow-up) with group assignment and time x group interaction included as fixed effects (p.05 for significance).
General linear model for repeated measures was used to compare (baseline and 12-week follow-up) with group assignment and time x group interaction included as fixed effects (p.05 for significance).
Results: Highly significant increases were achieved with an increase of 12.3 vs 2.7% in VO2max, and 37,2 vs 3.9% in power at VO2max, respectively, in the intervention group compared to the control group (p.05). The fatigue decreased by 14.4 points in the intervention group compared with only 2.2 points in the control group (p < .001). A significant decrease in pain was obtained for the intervention group with a reduction by 21.4 points vs 2.6 points for the control group (p < .001). Emotional status (16.6 vs 11.0 points) and role function (14.9 vs –0.1 points) were significantly higher in the intervention group (p.05) and there were no differences in global health status. Arm symptoms did not improve with intervention.
Conclusions: A supervised, individualized, prescriptive results in an improvement in functional ability and QOL functions in women with advanced breast cancer.

PO136

FIRST-LINE TREATMENT MODALITY FOR METASTATIC BREAST CANCER: A SINGLE-INSTITUTION OUTCOME ANALYSIS BY METASTATIC SITE AND MOLECULAR TYPE

Russell Burcombe, Claire Ryan
Kent Oncology Centre, Maidstone & Tunbridge Wells NHS Trust, Maidstone, UK

Introduction: There is no official national prospective data collection on the number of people living with metastatic breast cancer (MBC) in the UK. The scale of the problem is unknown. Increasingly 'niche' clinical trials target specific molecular sub-groups, but their reproducibility in the non-trial population is unclear.
Patients frequently live with MBC for many years; consequently, the toxicity and sequencing of treatments becomes ever more important as clinicians strive to preserve quality of life for as long as possible.
Common practice has been to offer patients with visceral (lung and/or liver) metastases first-line chemotherapy and those with bone-only metastases endocrine treatment first. The recent introduction of new pathway inhibitors (CDK4/6), which prolong progression free survival, may help postpone use of chemotherapy in patients with ER+ MBC.
Outcome data from conventional first-line metastatic treatments in a tertiary cancer centre are lacking. Accurate information would help better define populations for suitable clinical trials and assist commissioners to use resources to fully and effectively meet the needs of people with MBC.
Results: A single centre retrospective database was established at the Kent Oncology Centre Jan 2016. 180 MBC patients were identified.
Metastatic site(s) at presentation were documented: Bone-only 48 (27%), liver and/or lung 78 (43%), other (nodes, pleural effusion, peritoneum) 54 (30%).
Biological marker status on primary tumour was categorised: ER + HER2– = 122 (68%), ER + HER2+ = 22 (12%), ER + HER2 unknown = 14 (8%), ER–PR–HER2– (triple negative) = 14 (8%), ER–HER2+ = 8 (4%).
First-line endocrine therapy was used in 83% (bone-only), 41% (liver and/or lung) and 65% (other) of all patients. Chemotherapy (with HER2-targeted therapy where appropriate) was the first systemic treatment in 4%, 45% and 26% respectively.
The minority of patients with bone-only metastases not receiving first-line endocrine therapy were treated with HER2-directed therapy (11%) or chemotherapy (4%).
Amongst patients with liver and/or lung metastases, first-line treatment (% chemotherapy / % endocrine / % observation) varied by biological status as shown: ER + HER2- (28/70/2%), ER + HER2+ (78/22/0%), ER + HER2 unknown (56/44/0%), ER-PR-HER2- ('triple negative) (71/0/29%); ER-HER2+ (75/0/0% plus 25% HER2-directed therapy alone).
Conclusion: These data indicate substantial use (70%) of endocrine treatment as first line therapy for ER + HER2- patients with liver and/or lung metastases in a busy non-academic cancer centre. Pathway inhibitors may further benefit this group by sparing them the toxicity of chemotherapy for even longer.
Progression-free survival data by treatment modality, molecular subtype and metastatic sites will be presented.

PO137

PRESENTATION AND SPECIFIC RISK FACTORS OF INFLAMMATORY BREAST CANCER (IBC): A MULTICENTER TUNISIAN STUDY

Nesrine Mejri Turki[1], Mehdi Benna[2], Houda El Benna[1], Soumaya Labidi[1], Nouha Daoud[1], Bechir Zouari[3], Farouk Benna[4,5], Hamouda Boussen[1,5]
[1]Abderrahmen Mami Hospital, Dept. of Medical Oncology, Ariana, Tunisia; [2]Abderrahmen Mami Hospital, Surgical Oncology, Tunis, Tunisia; [3]Faculty of Medecine, Biostatistics, Tunis, Tunisia; [4]Salah Azaiez Institute, Radiation Oncology, Tunis, Tunisia; [5]Taoufik clinic, Oncology Center, Ariana, Tunisia

Background: Inflammatory breast cancer (IBC) is an aggressive form of locally advanced breast cancer described as more common in Tunisia and north-africa. Since 1980, there has been a decrease in the incidence of IBC in Tunisia thanks to early diagnosis, awareness campaigns and improvement of socioeconomic level of the population.
Objective: We aimed to describe modern clinical presentation, immunohistological features and risk factors of IBC in Tunisian population in the last decade.
Methods: We retrospectively reviewed all cases of histologically confirmed IBC patients treated in three oncology centers between 2001 and 2015. Only cases diagnosed as IBC by at least a surgeon and an oncologist were considered. Collected data included demographics, clinical, radiological and histopathological characteristics.
Results: Incidence of IBC was 7.6% (163/2150 breast cancer cases). Mean age was 48 years old (24-80). Familial history of breast cancer was found in 32,3% of patients. Time line for consultation was 2,5 months (rang 1–24). Low socio-economic status was found in 86,3% of patients. Mean age at menarche was 14 and mean age at first childbearing was 24 years old (17 to 36). Eighty three percent of IBC patients had more than one child, among them 58% had more than 3 children. Breast feeding was

reported by 59,5% of women with a mean duration of 12 months (2 to 30). IBC patients were premenopausal in 42,5% of cases. Obesity was observed in 46% of cases. De novo metastatic disease was seen in 18,4%. Ductual carcinoma was the most common histology (94,5%). Hormonal receptors were positive in 55,6% of cases, Her/2neu was amplified in 48,1% of cases and triple negative status was found in 20.8%.
Conclusion: Usual protective breast cancer factors such as young age, multiparity, breastfeeding and young age at first birth were commonly observed in IBC patients. HER2 was also frequently amplified. IBC has a specific risk factors profile and a particular biology of the disease.

PO138

PREFERENCE OF TREATMENT DECISION-MAKING IN WOMEN WITH ADVANCED BREAST CANCER

Chikako Shimizu[1], Saran Yoshida[6], Aiko Maejima[1], Kenjiro Aogi[5], Shun Kudo[8], Hiroko Bando[7], Emika Ichioka[7], Eriko Tokunaga[2], Hiroyuki Otani[3], Tatsuya Morita[4]
[1]National Cancer Center Hospital, Department of Breast and Medical Oncology, Tokyo, Japan; [2]National Hospital Organization Kyushu Cancer Center, Department of Breast Oncology, Fukuoka, Japan; [3]National Hospital Organization Kyushu Cancer Center, Department of Palliative Care Team, and Palliative and Supportive Care, Fukuoka, Japan; [4]Seirei Mikatahara General Hospital, Department of Palliative and Supportive Care, Palliative Care Team, and Seirei Hospice, Hamamatsu, Japan; [5]Shikoku Cancer Center, Department of Breast and Endocrine Surgery, Matsuyama, Japan; [6]Tohoku University, Graduate School of Education, Sendai, Japan; [7]University of Tsukuba, Department of Breast-Thyroid-Endocrine Surgery, Tsukuba, Japan; [8]Yamagata Prefectural Central Hospital, Department of Breast Surgery, Yamagata, Japan

Background: Few studies have evaluated preference for involvement in treatment decision-making in women with advanced breast cancer.
Methods: To explore the experience and preference of treatment decision-making in patients with advanced breast cancer, we conducted a cross-sectional survey at five institutions in Japan. Between August 2015 and August 2016, 135 women with breast cancer who were diagnosed as incurable within six months were invited to participate in this survey. Responses to the questionnaires were voluntary. The decision-making experience for current treatment and preference of decision-making for future treatments were evaluated by selection of statements adapted from the survey of Bruera et al. (J Clin Oncol, 2001): (1) I prefer to make the treatment decision of my own; (2) I prefer to make the treatment decision after hearing the physician's opinion; (3) I prefer to make the treatment decision together with physician; (4) I prefer the physician to make the treatment after talking to me; (5) I prefer the physician to make the decision on his/her own. The answers were categorized to three main categories: 'active (statements 1 and 2)', 'shared (statement 3)'; and 'passive (statements 4 and 5)'. Association between socio-demographic characteristics and decision-making experience/preference was evaluated using qui-square test.
Results: 77 (57%) of the women responded to the survey. Median age of the respondents was 57 (range 29–86) years old. Patients' perceptions of decision-making for the current treatment were active, shared and passive in 34%, 27% and 35%, respectively. Patients' preference in decision making for future treatments were active, shared and passive in 27%, 44% and 23%, respectively. 63% of the future preferences were discordant with decision-making experience for the current treatment. Marital status was significantly associated with preference of future decision-making ($p = 0.0016$): More married women preferred shared decision-making than single women, while more single women preferred active decision-making than married women. No other factor was identified to be associated with either decision-making experience or preference.
Conclusion: Preference of decision-making women in advanced breast cancer varies and may change during the treatment course. Marital status may influence the preference of decision-making in Japanese women.

PO139

AN INVESTIGATION INTO THE PSYCHO-SOCIAL BENEFITS OF WOMEN ATTENDING UK CHARITY BREAST CANCER CARE'S 'LIVING WITH SECONDARY BREAST CANCER' SERVICE: A GROUP BASED PSYCHO-EDUCATIONAL INTERVENTION

Catherine Priestley
Breast Cancer Care, Nursing Dept., London, United Kingdom

Background: Being diagnosed and treated for secondary (metastatic) breast cancer affects all aspects of a woman's life. Since 2011, Breast Cancer Care (BCC) has aimed to support women live with secondary breast cancer through the provision of our Living with Secondary Breast Cancer (LWSBC) service. The service comprises monthly drop-in sessions facilitated by an experienced therapist, with the aim of providing medical information and psycho-social support – including peer support. In 2016/17, 592 women attended the service.
Study Aims: In 2016 BCC commissioned an independent researcher to evaluate women's experiences of the LWSBC service, examine the potential benefits on women's lives, and identify areas for service improvement.
Methods: We adopted a mixed method approach. Telephone interviews were conducted with 20 women who attended the service from five different geographical locations and 93 women responded to an online/written questionnaire survey. Survey responses were also received from 13 therapists and six staff members, and a total of seven healthcare professionals were interviewed by telephone.
Results: The LWSBC service was rated highly by both women and healthcare professionals with 93% of women reporting that they were highly satisfied or satisfied. 92% reported that the service improved their emotional wellbeing and 99% reported feeling more self-confident. Women felt better informed about the disease and learnt from each other about how to self-manage some of the ongoing physical and emotional consequences of treatment. They described feeling less anxious as a result of having their information and support needs met. Both women and healthcare professionals suggested that people should be referred to the service approximately three months after diagnosis, to allow them time to come to terms with their diagnosis. Therapists play a crucial role in supporting group members and managing difficult discussions, such as preparing for end of life and the loss of a group member. Women overwhelmingly felt these discussions were sensitively and appropriately managed. Many women felt disappointed that the LWSBC service is not more widely known and recommended that more promotion is needed amongst healthcare professionals and metastatic breast cancer patients.
Conclusions: Healthcare professionals and women diagnosed with metastatic breast cancer would advocate the LWSBC service as a model of good psycho-social care that enhances existing provision provided by the NHS. Peer support plays a critical role in this service model. It provides women with a safe place to share worries, needs and concerns without burdening family members,

thereby reducing women's isolation and improving emotional functioning.

PO140

RISE OF METASTATIC BREAST CANCER INCIDENCE IN LEBANON: EFFECT OF REFUGEES AND DISPLACED PEOPLE FROM SYRIA, AND PATIENTS FROM WAR-TORN IRAQ

Nagi S. El Saghir, Sarah Daouk, Rita Saroufim, Nour Moukalled, Nada Ghosn, Hazem Assi, Arafat Tfaily, Deborah Mukherji, Maya Charafeddine, Monita Al-Darazi, Ali Shamseddine
American University of Beirut Medical Center, Naef K. Basile Cancer Center, Beirut, Lebanon

Background: Breast cancer is the most frequent cancer among women worldwide and in the Middle East. Breast cancer incidence in Lebanon has been reported to show significant increase because of the influx of refugees, displaced people, and patients from war-torn neighboring countries. Total population of Lebanon rose from 4 Millions to 6.2 Millions after the influx of refugees, mostly from Syria. Practicing physicians have noted an increase in the number of patients with advanced breast cancer at presentation. There are 65.3 Million refugees and displaced people worldwide. Their problems are universal.
Methods: We collected 2015 data from the website of the Lebanese Ministry of Public (MOPH) and the database registry of the American University of Beirut Medical Center (AUBMC). We looked at demographics and clinical characteristics. IRB approval was obtained to extract data from the AUBMC database. Data was collected, entered and analyzed using the SPSS v.23.0™.
Results: There were a total of 2821 new breast cancer cases diagnosed in Lebanon in 2015. This is a 37.7% increase since 2008, when there were a total of 1758 cases only. A total of 628 cases (22.8%) were seen at AUBMC, of whom 372 were Lebanese (59%), 213 Iraqi (34%) and 43 patients (7%) Syrian and others. The mean age of female breast cancer patients at diagnosis in was 51.1 years old (range 17–88 years). The majority (74%) had infiltrating ductal carcinoma, 6% had infiltrating lobular carcinoma, 8% had DCIS, and the rest 12% had other cancer types. 446 cases (79%) were ER+, 408 cases (72%) were PR+, 111 (21%) were HER2+.
Among Lebanese patients, 28% were screen-detected. 25.3% were stage I, 29.3% stage II, 16.9% stage III and 15.3% Stage IV. Among Iraqi patients, 4% were screen-detected. 8.9% were stage I, 39.4% stage II, 16.1% stage III and 24.4% Stage IV. Syrian patients usually are not covered by UN agencies nor other charities and most of them try to go back to Syria to get some treatment. Data from 2016 will be ready before the ABC4 November meeting and will be added in the presentation.
Conclusions: A significant 35.2% rise of cancer cases is noted in Lebanon which is due to the influx of refugees and displaced people, as well as patients seeking medical care from war-torn Syria and Iraq. Breast cancer incidence has increased by 37.6%. High percentage of Iraqi patients present with advanced breast cancer stage at diagnosis. Syrian patients have no insurances and cancer care is excluded from coverage from United Nations agencies and charity organizations mostly because of costs. Needs of refugees, displaced people and patients in war-torn countries affected with breast cancer need to be addressed. Application of resource-stratified guidelines is suggested.

PO141

ADJUVANT THERAPIES FOR BREAST CANCER IMPROVE CURE RATES BUT APPEAR TO SHORTEN POST-METASTATIC SURVIVAL

Nadia Harbeck[8], Dieter Hölzel[7], Renate Eckel[7], Ingo Bauerfeind[2], Bernd Baier[1], Thomas Beck[4], Michael Braun[6], Johannes Ettl[3], Ulrich Hamann[6], Marion Kiechle[3], Sven Mahner[8], Christian Schindlbeck[5], Johann de Waal[1], Jutta Engel[7]
[1]Klinikum Dachau, OB&GYN, Dachau, Germany; [2]Klinikum Landshut, Department of Obstetrics and Gynaecology, Landshut, Germany; [3]Klinikum rechts der Isar, Technical University of Munich (TUM), OB&GYN, Munich, Germany; [4]Klinikum Rosenheim, OB&GYN, Rosenheim, Germany; [5]Klinikum Traunstein, OB&GYN, Traunstein, Germany; [6]Rotkreuzklinikum, Munich, OB&GYN, Munich, Germany; [7]University Hospital of Munich, Ludwig-Maximilians-University (LMU), Munich Germany, Munich Cancer Registry (MCR) of the Munich Tumour Centre (TZM), Institute for Medical Information Processing, Biometry and Epidemiology (IBE), Munich, Germany; [8]University of Munich (LMU), Breast Centre, Dept. of Obstetrics and Gynaecology, Munich, Germany

Purpose: Systemic therapies (ATHs) in early breast cancer have improved the survival of breast cancer (BC) patients in recent decades. The magnitude of the changes in overall (OS), metastasis-free (MFS) and post-metastatic (PMS) survival and in the metastasis (MET) pattern will be described.
Patients and Methods: We analysed 60,227 patients with a diagnosis of T-N-M0 BC between 1978 and 2013 and 11,983 patients with metastases (MET) in the Munich Cancer Registry. Patients will be divided into four time periods to identify relationships between BC and METs. Survival was estimated using Kaplan–Meier curves, and Cox proportional hazards models were used to explore the impact of the BC subtype and MET status on survival with the time periods as surrogate markers for ATH evolution.
Results: During the observation period, 5-year relative survival has improved from 80.3% to 93.6% with an adjusted hazard ratio of 0.54 ($P < 0.0001$). Successful implementation of ATH has changed the MET pattern. The percentage of liver and CNS METs has more than doubled, the rate of lung METs remains stable, and the rate of bone METs has been reduced by approximately 50%.
MFS has been prolonged with a hazard ratio 0.75 ($P < 0.0001$), but PMS has declined (hazard ratio 1.36; $P < 0.0001$); however, effects of adjuvant and palliative treatments cannot be separated. These results do not contradict an improvement in advanced BC and do not suggest alterations of MET tumor biology by ATH.
Conclusions: Over the past 3 decades, ATHs have dramatically improved patient survival after BC diagnosis – most likely, by eradicating prevalent micro-METs; as a result, the MET pattern has changed. Eradicating only a portion of the first METs results in delaying the onset of subsequent MET, which leads to an apparently paradoxical effect: An extension of the MET-free interval (MFI) and a reduction in PMS.

PO142

ADVANCED BREAST CANCER PREVALENCE AND RELATED PERSONAL FACTORS

Nanuli Ninashvili[2], Mikheil Shavida[1]
[1]Palliative Care Clinic, Cancer Prevention Center, Tbilisi, Georgia; [2]Tbilisi State Medical University, Epidemiology and Biostatistics Dept., Tbilisi, Georgia

Background: Breast cancer is one of the public health priority. Most of the cases was detected in advanced stage. The study aimed

to study advanced breast cancer prevalence and factors influencing on early detection of the cases.
Material and Methods: Statistical data was employed for 2010-2015. Cross-sectional survey was conducted on 346 randomly selected breast cancer inpatients. A special questionnaire was developed and disseminated among the patients to study patient-s'awareness toward their diagnoses. Statistical methods were applied to the results for significance.
Results: An upward trend of breast Cancer prevalence has been observed. Although screening program significantly contributed to the early detection of breast cancer cases, proportion of advanced cases remains high. Survey results showed that the vast majority of the patients (94.5%) were unaware of the causes of their suffering. A few of them suspected tumor. 15% – attributed their pain to inflammatory diseases. Only 20% were aware of the diagnose either advanced stage or the operation history prior to the study. Of those who didn't know their diagnoses only 110 (32.6%) expressed willing to know it. Most of them were of productive ages (30-64) and belonged to III and IV groups by ECOG-scale while of those who preferred to know what caused their pain, the majority were between 50 and 64 ages. Over 70% of them belonged to III and IV groups by ECOG-scale. Patients' awareness was positively correlated with the disease stage (OR = 2.14). Almost all patients preferred not to communicate their health problem with others as it would be considered bad-mannered. Every fourth of the cancer patients, suffered with unrelieved pain prior to the admission to the clinic.
The vast majority of advanced breast cancer cases were from rural areas of the country.
Conclusions: (1) Breast cancer dominates in female population and its prevalence is remains high, especially at advanced stage. (2) Patients' unawareness and willingness to know diagnosis of their suffering along other factors are most likely to play a significant role in the observed high level of advanced cancer.

PO143

INFLAMMATORY BREAST CANCER: A SINGLE CENTER EXPERIENCE FROM DEVELOPING COUNTRY

Pooja Khullar, Anil Thakwani, Kundan Schufal
Batra Hospital and Medical Research Centre, Radiation Oncology Department, New Delhi, India

Background: Inflammatory breast cancer (IBC) is an aggressive form of locally advanced breast cancer characterized by rapidly progressive breast erythema, pain and tenderness, oedema and paeu d'orange appearance. It accounts for 1% of all newly diagnosed cases of breast cancer in the west. There is limited data on IBC from India. The aim of our study was to assess the clinical-pathological parameters and outcome of IBC at our centre.
Materials and Methods: We screened 5000 breast cancer cases registered from January 2004 to December 2016 and found 71 cases of IBC. Data included demographics as well as clinical, radiological and histopathological characteristics, and were collected from clinical case records. Patient characteristics and survival estimates were compared by using chi-square test and Kaplan-Meier method with log-rank statistic.
Results: The median age was 42 years (range 23-61). The median duration of symptoms was 6 months and median size was 6.0 c.m The American Joint Committee on Cancer stage (AJCC) distribution was Stage III – 51 and IV – 20 patients. All cases were female and Invasive ductal carcinoma was the histology in all cases. Most of tumors (90%) were high grade. Eighty percent patients had clinical node positivity and 60% had pathological node positive disease.
Estrogen receptor (ER), progesterone receptor (PR) positivity and human epidermal growth factor receptor 2 (HER2/neu) positivity were seen in 50%, 46% and 40% of cases respectively. Triple negativity was found in 20% of the cases. All the non metastatic IBC patients received anthracycline and sequential taxane based chemotherapy followed by modified radical mastectomy, radio-therapy and hormonal therapy as indicated. Pathological complete remission rate was 10%. A total of 51 events were recorded (36 relapse and 15 progression) during study period. Brain was the commonest site of systemic metastasis followed by lung and bones. Median time to relapse was 15 months and progression was 9 months. Trastuzumab was used in 9 cases. At a median follow-up of 42 months, the 3 year relapse free survival and overall survival were 35% and 40%respectively. Clinical size (>5 c.m), pathological N3 disease and HER2/neu positivity were associated with poor relapse free survival.
Conclusion: IBC constituted 1.4% of all breast cancer patients at our center. Hormone positivity and HER2/neu positivity and triple negative status were found in 50%, 40% and 20% of the cases, respectively. Advanced stage and HER2/neu positivity were associated with poor survival.

PO144

CLINICOPATHOLOGICAL CHARACTERISTICS, PROGNOSIS AND ISSUES IN YOUNG WOMEN (<40 YEARS OLD) WITH RECURRENT OR METASTATIC BREAST CANCER

Kaori Ushimado, Naomi Kobayashi, Masahiro Hikichi, Toshiaki Utsumi
Fujita Health University, Breast Surgery Dept., Aichi, Japan

Background: Breast cancer in young women has unique issues to pay more attention to. Although the past 40 years have seen remarkable advances in breast cancer treatment, many studies have shown that young women with breast cancer have a worse prognosis. Treatment infertility is thought to be one of the major concerns of women of reproductive age. Young breast cancer survivors and their spouses might face a difficult dilemma regarding their wish to have children. This study aimed to investigate the clinicopathological characteristics, prognosis and issues in young women (<40 years) with breast cancer in a single institution.
Patients and Methods: A retrospective study was conducted. A total of 155 young women with breast cancer, treated from 2005 to 2015 at our hospital, were included in this study. Overall survival (OS) curves, relapse-free survival (RFS) curves and survival after relapse (SAR) curves were generated using the Kaplan-Meier method.
Results: 1774 patients with breast cancer were treated from 2005 to 2015. Of the 1774 patients, there were 155 (8.7%) women aged <40 years. The median age was 36 years (range 22–39). Synchronous (n = 4) or metachronous (n = 6) bilateral breast cancer were found in 10 patients. The stages were as follows, stage 0 (n = 17, 10.4%), I (n = 33, 20.1%), II (n = 88, 53.7%), III (n = 15, 9.1%), IV (n = 7, 4.3%, One had synchronous bilateral cancer.), and unknown (n = 4, 2.4%). There were 21 recurrences. The median OS for the 21 patients was 64 months (range 17–122). The median RFS was 38 months (range 0–100). The median SAR was 26 months (range 0–91). ER was a significant prognostic factor for SAR. The median OS for stage IV patients was 30 months (range 10–43). Of the 8 tumors, 7 tumors (87.5%) were ER positive, 5 (62.5%) were PgR positive, and 1 (12.5%) was triple negative. ER and histological grade were significant prognostic factors for OS. We herein present a case that exemplified many issues. This woman was diagnosed with right breast cancer at the age of 28 years. She initially underwent breast-conservation therapy and adjuvant therapy. She developed a local recurrence in the breast and underwent right mastectomy at the age of 32 years. One year later she was diagnosed

with left breast cancer and underwent left mastectomy. One year later she developed a local recurrence and underwent radiation therapy and hormone therapy. When she became 38 years, she was eager to have a child. After discussing about possible progress disease due to stopping hormone therapy, she chose to stop it to have a baby. Afterward she delivered a full healthy normal weight baby. She died 7 years later.
Conclusions: Young women with breast cancer should be given focus and a further study with a large number patients is recommended.

PO145

HARVESTING POPULATION DATA TO AID TREATMENT DECISIONS IN HEAVILY PRE-TREATED ADVANCED BREAST CANCER

Sharon Hensley Alford, Ozery-Flato Michal, Goldschmidt Ya'ara
IBM, Watson Health, Dearborn, USA

Cancer is the leading cause of death worldwide among women. Among cancers, breast cancer is the most significant both in incidence and mortality. Cancer overall, and breast cancer specifically, is expected to increase world-wide due to the overall growth and aging of the world population. As treatments for breast cancer have improved, more women are living longer with advanced breast cancer. However, evidence to support treatment decisions in heavily treated cases is sparse. Medical record data is becoming more and more available in electronic format; therefore, the access and cost of obtaining data on large populations of patients has become feasible. In parallel, computing capabilities to handle large and complex datasets have also advanced. We are currently entering an era where near real-time analysis of large pools of patient data will be possible at the point of care to support treatment decisions. IBM Research and IBM Watson Health have been investing in the computing architecture and analytics to make point of care analytics possible. In particular, IBM has developed a tool for population comparison that allows the computation of the likelihood of a patient to respond better to a given treatment option, compared to an alternative. The tool incorporates causal inference techniques for correcting treatment biases in the data, as well as identifying causes for differential treatment response. The tool analyzes multiple dimensions in patients' history, as well as observed treatment outcomes, and produces a prediction model for being a 'better responder' for the treatment. Using similarity analytics and pattern mining, the tool can identify women in the dataset having similar expected differential response to the treatments, allowing doctors to inspect and compare their treatments and outcomes. Doctors can use this tool to present a patient with her likelihood to respond better to a certain treatment, compared to the alternative (with confidence intervals also provided), so that a data driven decision can be made using the most current and pertinent information for that individual patient. We will present the patented mathematical methods, data visualization, and computing process, developed at IBM, needed for this type of precision medicine in breast cancer and map the data architecture necessary to build such a clinical decision support tool.

PR146

CLINICOPATHOLOGICAL FACTORS AND PROGNOSIS IN ELDERLY RECURRENT BREAST CANCER PATIENTS OLDER THAN 75-YEARS-OLD

Mayumi Ishida, Takanobu Masuda, Hideki Ijichi, Wakako Tajiri, Chinami Koga, Junko Tanaka, Yoshiaki Nakamura, Eriko Tokunaga
National Hospital Organization Kyushu Cancer Center, Department of Breast Oncology, Fukuoka, Japan

Background: As for the purpose of adjuvant therapy (Adj.Tx) for elderly breast cancer patient, quality of life maintenance is important as well as prevention of recurrence. We also have to consider the individual health condition such as complications, performance states(PS) and life span when we determine the Adj. Tx. The average life span of Japanese women is 86 years. The significance of early breast cancer in Japanese women on the survival of elderly patients is still unknown.
Purpose: We conducted this study to clarify the relationships between tumor subtypes and clinicopahtological factors and prognosis in elderly recurrent breast cancer patients older than 75 years old.
Patients and methods: We reviewed retrospectively 200 cases older than 75 years old with Stage I-III primary breast cancer receiving surgery between 2000 and 2014. 26 cases of them recurred. We examined clinicopathological factors, overall survival (OS), and survival rate after recurrence.
Results: The average age was 81 years old at recurrence. At surgery, 23 cases (46%) had T1-2 tumors, and 10 cases (38%) were node-negative, 10 cases (42%) were node-positive, 5 cases (20%) had no axillary surgery. Hormone receptor(HR) was positive in 17 cases (65%), HER2 was positive in 5 cases (20%). In terms of the tumor subtypes, 13 cases (50%) were HR+/HER2-, 1 case (4%) was HR+/HER2+, 4 cases (15%) were HR-/HER2+, 4 cases (15%) were HR-/HER2-. Lumpectomy(Bp) and mastectomy(Bt) were performed 16(62%) and 10 cases (38%), respectively. Adj. radiotherapy(RT) was performed for only 1 case of Bt patient. The number of the recurrent cases without adjuvant RT was larger compared with that of the cases who received adj. RT, although not statistically significant (5% vs.14%, $p = 0.47$). In HR positive patients, 8 cases (47%) were received endocrine therapy(ET). Chemotherapy was performed for only 1 case and 17 cases (65%) did not receive any adjuvant treatment. First recurrence sites were as follows; local recurrence(LR), 19 cases (73%), distant metastasis(DM) 7 cases (27%). 3-yaer OS after recurrence, was 43% and 40% in HR+ and HR- ($p = 0.27$), was 23% and 54% in HER2+ and HER2- cases ($p = 0.25$), 57% and 46% in the patients with LR and those with DM ($p = 0.57$), adj. Tx cases were 64%, no treatment cases were 39% ($p = 0.26$). In HR+ cases, patients with ET was 100% and those without ET was 83.3% ($p = 0.058$).
Conclusion: Regardless of operation method, there were a lot of cases who did not receive adj. RT. As for the prognosis after the recurrence, there were no significant differences between OS and HR and HER2 status, recurrent sites, and Adj.Tx, but no ET may have worse prognosis than ET. Our study suggests that the optimal adj. RT and ET may improve prognosis, even in the elderly breast cancer patients older than 75 years old.

The Breast 36 S1 (2017) S77–S78

Contents lists available at ScienceDirect

The Breast

journal homepage: www.elsevier.com/brst

Disclosure of Conflict of Interest

Faculty members have been asked to disclose any potential conflict of interest in relation to their participation in the conference. Potential conflict of interest are considered any of the following:

Any financial interest in or arrangement with a company whose products or services are discussed in the lecture or that might be considered as part of the consensus process.

Any financial interest in or arrangement with a competing company.

Any other financial relationship, direct or indirect, or other situations that might raise the question of bias in the work presented or in the participation in the consensus process, including pertinent commercial or other sources of funding for the speaker or panellist or for the associated department or organisation, personal relationships or direct academic competition.

ABC4 Chairs, Co-Chairs, Scientific Committee Members, faculty and panel members

Matti S. Aapro: Receipt of grants/research supports: Amgen, Helsinn, Pfizer, Sandoz, TEVA, VIFOR. Receipt of honoraria or consultation fees: Amgen, Angelini, Helsinn, Kirin, Pfizer, Sandoz, Taiho, TEVA, VIFOR. Participation in a sponsored speakers' bureau: Helsinn, Pfizer, Sandoz, Taiho, TEVA

Bertha Aguilar Lopes: No significant relationships

Fabrice André: Receipt of grants/research supports: AstraZeneca, Novartis, Pfizer, Lilly

Carlos H. Barrios: Receipt of grants/research support: Pfizer, Novartis, Amgen, AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Taiho Pharmacuetical, Mylan, Merrimack, Merck, Abbvie, Astellas Pharma, Biomarin, Bristol Myers Squibb, Daiichi Sankyo, Abraxis BioScience, AB Science, Asana Biosciences, Medivation, Exelius, ImClone Systems, LEO Pharma, Millenium. Receipt of honoraria or consultation fees: Boehringer Ingelheim, GSK, Novartis, Pfizer, Roche/Genentech, Eisai.

Jonas Bergh: Receipt of grants/research support: Amgen, AstraZeneca, Bayer, Merck, Pfizer, Roche, Sanofi-Aventis to Karolinska Institutet/University Hospital. No personal payments. Payment to Asklepios HB for a chapter in UpToDate on breast cancer.

Elizabeth Bergsten Nordström: No significant relationships

Laura Biganzoli: Receipt of grants/research support: Celgene. Receipt of honoraria or consultation fees: Eisai, AstraZeneca, Ipsen, Roche, Novartis

Christine B. Boers-Doets: Receipt of grants/research support: Bayer, Novartis, Pfizer, Roche, EusaPharma, Amgen, GSK. Amgen, AstraZeneca, Baxalta, Bayer, Becton, Dickinson, bioXtra, Boehringer Ingelheim, Bristol Myers Squibb, EusaPharma, Galera, GlaxoSmithKline, Helsinn, MerckSerono, Merck Sharp & Dohme, Shire, Nordic Pharma, Novartis, Pfizer, Roche, Takeda.

Anna Cabanes: Receipt of grants/research support: Pfizer Inc, Merck, Caterpillar, GE

Fatima Cardoso: Receipt of honoraria or consultation fees: Astellas/Medivation, AstraZeneca, Celgene, Daiichi-Sankyo, Eisai, GE Oncology, Genentech, GlaxoSmithKline (GSK), Macrogenetics, Merck-Sharp, Merus BV, Mylan, Novartis, Pfizer, Pierre Fabre, Roche, Sanofi, Teva

Maria João Cardoso: No significant relationships

Lisa A. Carey: No significant relationships

Dian "CJ" M. Corneliussen-James: No significant relationships

Javier Cortés: Receipt of honoraria: Roche, Novartis, Eisai, Celgene, Pfizer.
Consulting/advisor: Roche, Celgene, Aztrazeneca, Cellestia Biotech, Biothera.

Alberto Costa: No significant relationships

Giuseppe Curigliano: Receipt of honoraria or consultation fees: Roche, Pfizer

Véronique Diéras: Receipt of honoraria or consultation fees for advisory boards: Roche, Novartis, Pfizer, Lilly, Abbvie. Participation in a sponsored speaker's bureau: Roche, Pfizer.

Nagi S. El Saghir: Receipt of grants/research support: Novartis (to institution). Receipt of honoraria or consultation fees: Novartis, Roche, Pfizer, Lilly; MSD

Matthew J. Elllis: Receipt of grants/research support: Pfizer. Receipt of honoraria or consultation fees: Pfizer, Astra Zeneca, Novartis, Puma. Stock shareholder: Bioclassifier LLC, Prosigna

Alexandru Eniu: Receipt of grants/research support: Astra Zeneca, Roche, Celltrion, Pfizer.

Lesley Fallowfield: No significant relationships

Prudence A. Francis: Receipt of honoraria or consultation fees: AstraZeneca. Other support: Overseas speaker for Pfizer.

Karen Gelmon: Receipt of grants/research support: AstraZeneca, Pfizer, BMS. Receipt of honoraria or consultation fees: Merck, AstraZeneca, Novartis, BMS.

Mary K. Gospodorowicz: No significant relationships

Renate Haidinger: No significant relationships

Nadia Harbeck: Receipt of honoraria or consultation fees: Amgen, Celgene, Novartis, Pfizer, Roche, Sandoz

Stephen R.D. Johnston: Receipt of grants/research support: Pfizer, GlaxoSmithKline. Receipt of honoraria or consultation fees: AstraZeneca, Pfizer, Novartis. Participation in a sponsored speaker's bureau: Pfizer, Puma, OBI.

Bella Kaufman: Not received

Smruti Koppikar: Advisory board: Roche, Eli Lilly, Boehringer Ingelheim, MSD, Merck Serono, Myelan, Reddy

Ian E. Krop: Receipt of grants/research support and receipt of honoraria or consultation fees: Genentech

Danni Manzi: No significant relationships

Norbert Marschner: Stock shareholder: Iomedico AG. Other support: Iomedico AG is supporter of the trial.

Musa Mayer: No significant relationships

Shirley A. Mertz: Receipt of honoraria and consultation fees: Novartis, Pfizer

Gertrude Nakigudde: Receipt of grants/research support: UICC SPACC grant, Pfizer

Larry Norton: No significant relationships

Birgitte V. Offersen: No significant relationships

Shinji Ohno: Participation in a sponsored speaker's bureau: AstraZeneca, Novartis, Chugai, Eisai, Taiho, Kyowa-Kirin

Olivia Pagani: No significant relationships

Shani Paluch-Shimon: No significant relationships

Evi Papadopoulos: No significant relationships
Frédérique Penault-Llorca: Receipt of grants/research support: Roche, BMS, AstraZeneca. Receipt of honoraria or consultation fees: Roche, Novartis, BMS, AstraZeneca, MSD.
Aleix Prat: Receipt of honoraria or consultation fees: Nanostring technologies
Hope S. Rugo: Receipt of grants/research support: Genentech/Roche, Novartis, Eisai, OBI, Plexxikon, Merck, Macrogenics, Pfizer, Lilly
Timo Schinköthe: No significant relationships
Elzbieta Senkus: Receipt of grants/research support: Amgen, Astellas, AstraZeneca, Bayer, BMS, Janssen, Pfizer, Pierre Fabre, Roche. Other support (travel expenses) Amgen, Astellas, AstraZeneca, Bayer, BMS, Janssen, Pfizer, Novartis, Roche.
George W. Sledge: Receipt of honoraria or consultation fees: Symphogen. Stock Shareholder: Syndax.
Danielle Spence: No significant relationships
Christoph Thomssen: Receipt of honoraria and consultation fees: Amgen, Astra Zeneca, Celgene, Nanostring, Novartis, Pfizer, Roche
Nicholas C. Turner: Not received
Daniel A. Vorobiof: Receipt of honoraria and consultation fees: Pfizer, BMS, MSD, AstraZeneca, Eisai, Roche. Participation in a sponsored speaker's bureau: BMS, MSD, Roche.
Nikhil Wagle: Receipt of grants/research support: Novartis, Merck, Puma. Receipt of honoraria and consultation fees: Novartis, Grail. Stock shareholder: Foundation medicine
Eric P. Winer: Receipt of grants/research support: Genentech. Receipt of honoraria and consultation fees: Genentech, Tesaro. Advisory board: Leap
Binghe Xu: No significant relationships

The Breast 36 S1 (2017) S79–S82

Contents lists available at ScienceDirect

The Breast

journal homepage: www.elsevier.com/brst

Author index

The Breast 36 S1 (2017) S83–S85

Contents lists available at ScienceDirect

The Breast

journal homepage: www.elsevier.com/brst

Abstract List

Invited abstracts

IN01 ABC4 Award Abstract: Silent voices speak: An advocate's journey
IN03 Management issues: How and until when to treat?
IN04 Is family planning (fertility, adoption) out of the question?
IN05 Insurance policies and professional career after an advanced breast cancer diagnosis
IN06 Optimal sequence with and without therapies for ABC
IN07 HER2 resistance factors - implications in HER2 positive ABC
IN08 Optimizing anti-HER-2 therapies for ABC potential role of immunotherapy
IN09 Will biosimilars become standard?
IN10 Luminal metastatic breast cancer: Best sequence of available therapies
IN11 The new management of luminal ABC: Management of new side effects
IN12 Mechanisms of resistance to endocrine and biological agents
IN13 Metronomic chemotherapy: A good old friend
IN14 Maintenance therapy (chemotherapy, endocrine therapy, biologics)
IN15 Oral drugs: Challenges for the oncology nurse
IN16 Systemic treatment of metastatic breast cancer (MBC) in older adults
IN17 Biology of inflammatory breast cancer
IN18 Chest wall disease: The clinical continuum between inflammatory and lymphangitic breast cancer
IN19 Inflammatory advanced breast cancer. The role of different radiation techniques
IN20 Multigene testing: Aid or clinical nightmare
IN21 Circualting tumour DNA analysis in breast cancer
IN22 Precision/personalized medicine: Hopes & hypes
IN23 Prevention and management of cancer treatment induced neurotoxicity
IN24 Peritoneal carcinomatosis and ascites: Best practices
IN25 End of life (EoL) communication - the healthcare provider perspective
IN26 Hard choices, last days, final gifts: Patient and family voices at the end of life
IN27 Global access to radiotherapy
IN28 Shortage of drugs: Solutions
IN29 eHealth: Friend or foe
IN30 What's new in biology
IN31 The role of immunotherapy in the treatment of triple negative breast cancer (TNBC)
IN32 Treating triple negative ABC

Abstracts – Nursing and Advocacy

OR33 Analysis of the gaps on metastatic breast cancer global policies and advocacy efforts to support policy development across the patient journey
BP34 #Pacientesnocontrole (patients in control): Campaign to increase access to metastatic breast cancer (mbc) treatment in Brazil
PR35 Introduction of menthol 1% cream as the election treatment in patients suffering from taxane induced neuropathy
PO36 Fostering innovation in advocacy for metastatic breast cancer
PO37 Public hearings and debate cycles for parliamentarians on breast cancer
PO38 A study of nursing provision and models of care for people diagnosed and living with metastatic breast cancer in britain: What are the impliations for the practice? And what role does patent advocacy play?
PO39 Educate-empower-advocate: A new model for advocacy and creating change for women with metastatic breast cancer
PO40 Patient navigation: Mitigating the surge of advanced breast cancer in sub-Saharan Africa
PO41 BC III and IV treatment in Brazil: Differences between public health, supplementary health and iternational protocol recommendations
PO42 The unmet information, support and financial needs of women with metastatic breast cancer in Australia: Results of two Breast Cancer Network Australia studies.
PO43 Tanto por hacer
PO44 Social media storytelling as an advocacy and support tool for people living with metastatic breast cancer
PO45 Breast cancer knowledge and quality of life among participants of a breast cancer support group in rural Ruwanda
PO46 Building a voice for metastatic breast cancer patients through a multi-year awareness campaign
PO47 Creating a novel drug navigation tool for metastatic breast cancer drugs in Canada
PO48 Share decision making for better patient participation in advanced breast cancer care
PR49 Advanced breast cancer in Malaysia
PO50 Coping with metastatic breast cancer: The patients' perspective in a Brazilian cancer center

PR55 Clinical study to improve patient-hcp communication & engagement for newly diagnosed metastatic breast cancer patients
PR52 Experience of advanced breast cancer patients in the australian health system and their expectations of future treatments and care
PO53 No lump required: A patient driven inflammatory breast cancer reserach initiative using the peer platform
PO54 The world is not enough: The twilight of MBC patients' needs

Abstracts – Basic and Translational Research

PO55 Are PALB2 mutation carriers at a higher risk of death from breast cancer?
PR56 Effects of pan-active BCL-2 protein family antagonist sabutoclax on overcoming drug resistance and eliminating cancer stem cells in human breast cancer cells
PO57 Mesenchymal circulating tumour cell analysis to predict efficacy of eribulin for metastatic breast cancer patients
PO58 Regulation of stemness properties by ganoderma lucidum extract in inflammatory breast cancer cells via STAT3 regulation
PO59 IL-2 mediated improvement of cell antitumor activity in advanced breast cancer patients
PO60 Influence of lipophilic components of matcha-tea extract on PPAR γ dependent cell proliferation
PO61 The identification of the genes concerning to the distant metastasis of TNBC - the interaction with AR as an index
PR62 Doxycyclin inhibits breast cancer stem cells under hypoxic conditions
PO63 Cancer associated fibroblasts display phenotypic and functional features that resemble circulating fibrocytes with constitute a nove subset of MDSCs

Abstracts – Clinical Issues: Medical Oncology

OR65 Impact of disease progression status on time to deterioration of patient reported health related quality of life in first line ER+ HER2-ve advanced/metastatic breast cancer patients in the paloma-2 study
PO66 Adverse events (AE) of targeted agents added to endocrine therapy in patients with hormone receptor-positive metastatic breast cancer: a systematic review and meta-analysis
BP67 Characteristics of the metastatic breast cancer population with PIK3CA mutation in the randomized phase II study SAFIR02 breast (UCBG- 0105/1304)
PO68 First-line ribociclib plus letrozole for postmenopausal women with HR+, HER2-ABC: MANALEESA-2 safety results
PO69 Overall survival and patient-reported impairment by fatigue, pain and treatment time in patients with advanced breast cancer in routine practice - results from the prospective German TMK cohort study
PO70 Herceptin alone in comparison with herceptin combined evorilimus in Asian patients with HER2+ breast cancer
PO71 ERBB2 amplification level and PTPN2 gain as potential prognostic factors in metastatic HER2-positive breast cancer treated with trastuzumab
PO72 Triplet combination of endocrine therapy with CDK 4/6 inhibitor, ribociclib, and mTOR inhibitor, everolimus in HR+, HER2-ABC: Results from the dose-expansion cohort
PO73 Efficacy and safety of palbociclib (PAL) pus fulvestrant (F) by geographic region in women with endocrine-resistant hormone receptor-positive (HR+), human epiderman growth factor receptor 2-negative (HER2-) advanced breast cancer (ABC) from PALOMA-3
PO74 Efficacy and safety of platinum and metronomic cyclophosphamide in triple negative breast cancer
PO75 Retrospective analysis of advanced luminal breast cancer patients treated with endocrine therapy (ET) and palbociclib within a compassionate use programme
PO76 Preliminary data from a prospective non-interventional study to characterize real-world treatment patterns and outcomes of women with ER+/HER2-advanced/metastatic breast cancer
PO77 Metronomic chemotherapy (mCHT) in HER2-ve advanced breast cancer (ABC) patients (pts): When care objectives meet patients' need. Preliminary results of the VICTOR-6 study
PO78 Randomized prospective study: Paclitaxel every-3-weekly paclitaxel and versus weekly vinorelbine in metastatic breast cancer
PO79 Real world prescription patterns in metastatic HR+ breast cancer. Analysis from Instituto Nacional de Cancerologia, Mexico City
PO80 Efficacy of first line regimens in metastatic breast cancer patients. Real world evidence from Instituto Nacional de Cancerologia, Mexico City
PO81 Ribociclib and endocrine therapy (ET) in hormone receptor-positive (HR+), human epidermal growth factor receptor 2-negative (HER-2) breast cancer: The MONALEESA clinical trials program
PO82 A phase II study of metronomic daily oral vinorelbine as first-line chemotherapy in advanced/metastatic hormone receptor positive (HR+)/human epidermal growth factor receptor 2 negative (HER2-) breast cancer resistant to endocrine therapy - vinometro
PO83 Prognostic factors in metastatic breast cancer patients to brain: Retrospective analysis
PO84 Nab-paclitaxel (Nab-P) in HER2-ve advanced breast cancer (ABC) patients (pts): Focus on luminal cancers. Results from GIM13-AMBRA study
PO85 Capecitabine and vinorelbine combination more effective as the first line treatment of advanced ER positive breast cancer
PO86 Efficacy and toxicity of eribulin in real-life non-selected advanced breast cancer patients
PO87 All oral combination of vinorelbine and capecitabile as a first line treatment in patients (pts) with metastatic breast cancer (MBC)
PO88 Efficacy of capecitabile monotherapy as treatment for real life patients with HER2-negative mestastatic breast cancer
PR89 Efficacy and safety of eribulin in patients with HER2-negative metastatic breast cancer: Real life experience
PO90 Efficacy and safety of eribulin in combination with trastuzimab in HER2-positive metastatic breast cancer patients: Real life experience
PO91 Relapse and metastatic spread patterns in patients with HER2/neu positive breast cancer who underwent targeted therapy
PO92 Evaluation of pertuzumab treatment for metastatic breast cancer in a retrospective single institution study
PO93 Leptomeningeal metastases from breast cancer - are we overtreatening? Decision algorithms and assuring breast care
PO94 Treatment of advanced breast cancer with T-DM1 in a cancer center
PO95 Patterns of response to therapy in ER/PR positive metastatic breast cancer
PO96 Advanced breast cancer in young women: Outcome of a Portuguese hospital
PR97 Brain mestastasis at diagnosis from breast cancer, clinical pathological features and survival
PR98 Mutiple drug resistance in breast cancer cells: Mirnaome dysregulation can facilitate expression of genes encoding the ATP binding cassette (ABC) transporters
PR99 Efficacy and safety of eribulin in patients with triple negative metastatic breast cancer: real life experience

PO100 Gastrointestinal and other selected adverse effects of cyclin-dependent kinase 4 and 6 inhibitors in breast cancer patients: a systematic review and meta-analysis
PR101 Benefit in overall survival of loco-regional control among patients with metastatic breast cancer
PR102 The behaviour of the triple negative breast cancer among African women in Sudan
PR103 Metastatic breast cancer subtype and clinical manifestations - Montenegrin experience
PR104 Capecitabine in the treatment of metastatic breast cancer: Single-institution retrospective analysis
PR105 Does oligo-metastatic breast cancer warrant a multidisciplinary approach with curative intent?
PR106 Does eribulin have an effect on anti-tumor activities of the subsequent regimen used in metastatic breast cancer
PR107 Locally advanced breast cancer in women under 40 years-old: Single center study
PR108 Does the choice of first-line chemotherapy influence the outcome of ER+HER2- metastatic breast cancer?
PR109 A woman with von recklinghausen and a resectable brain metastasis HER2 positive
PR110 Impact of next-generation sequencing (NGS) for primary endocrine resistance on breast cancer patients
PR111 Impact of molecular subtypes in patients with metastatic breast cancer at diagnosis

Abstracts – Clinical Issues: Surgical Oncology

PO112 Breast cancer liver metastases - when to operate
PO113 GISEL study group proposal: A phase II randomized clinical trial in breast cancer patients with skin metastases treated with or without electrochemotherapy (ECT) during the first line of treatment
PO114 Metastatic breast cancer patients who achieved clinical complete response after multidisciplinary therapy: Clinical features from a single institution
PO115 A novel and innovative "non-tunneling" technique of port insertion for chemotherapy infusion in advance breast cancer patients: A single center study in 130 patients
PR116 Discordance of hormone receptor and human epidermal growth factor receptor2 as a prognostic factor of survival between primary breast cancer and recurrent breast cancer
PO117 Electrochemoterapy (ECT) treatment in-patient with bone foot metastasis from breast: A case report
PO118 Five years overall survival of locally advanced triple-negative breast cancer in west Sumatera, Indonesia
PR119 Locally advanced breast cancer in Indonesia: Prognostic and result of treatment
PR120 Breast reconstruction is possible in locally advanced and inflammatory breast cancer

Abstracts – Clinical Issues: Supportive and Palliative Care

PO121 A retrospective cohort study to investigate association between preferences for future care and period of final chemotherapy administration before end-of-life
PO122 Advanced stage breast cancer lifestyle and exercise (ABLE) feasibility study: Preliminary results
PO123 Leaving a legacy: Half day retreat for young women living with metastatic breast cancer
PR124 Impact of support group intervention on the quality of life of patients with advanced breast cancer
PO125 The information and support needs of women with metastatic breast cancer who have dependant aged children: A study to inform service development to support women talk with and prepare their children
PO126 Quality of life and psychosocial need of metastatic breast cancer patients
PO127 Palliative care in Egypt: Challenges and opportunities
PO128 G-CSF and G-CSF biosimilars: A meta-analysis of randomized clinical trials in breast cancer patients undergoing myelosuppressive chemotherapy
PO129 Musculoskeletal pain and health-related quality of life among breast cancer patients: Evidence from south india
PO130 Utilization of integrative supportive services in a specialized advanced breast cancer center
PO131 Predictive factors for persistent pain in patients with advanced breast cancer receiving adjuvant therapy
PO132 Evaluation of health-related quality of life via the computer-based health evaluation system (CHES) for Japanese metastatic breast cancer patients: A single-center pilot study
PO133 Exploring support networks and quality of life of metastatic breast cancer patient in Nigeria and Turkey
PO134 Homestatic correlations in patients with breast and ovarian cancer

Abstracts – Clinical Issues: Other Topics

OR135 Effect of exercise on cardiovascular fitness and quality of life outcomes in advanced breast cancer patients
PO136 First-line treatment modality for metastatic breast cancer: A single-institution outcome analysis by metastatic site and molecular type
PO137 Presentation and specific risk factors of inflammatory breast cancer (IBC): A multicenter Tunisian study
PO138 Preference of treatment decision-making in women with advanced breast cancer
PO139 An investigation into the psycho-social benefits of women attending UK charity breast cancer care's "living with secondary breast cancer" service: A group based psycho-educational intervention
PO140 Rise of metastatic breast cancer incidence in Lebanon: Effect of refugees and displaced people from Syria, and patients from war-torn Iraq
PO141 Adjuvant therapies for breast cancer improve cure rates but appear to shorten post-metastatic survival
PO142 Advanced breast cancer prevalence and related personal factors
PO143 Inflammatory breast cancer: A single center experience from developing country
PO144 Clinicopathological characteristics, prognosis and issues in young women (<40 years old) with recurrent or metastatic breast cancer
PO145 Harvesting population data to aid treatment decisions in heavily pre-treated advanced breast cancer
PR146 Clinicopathological factors and prognosis in elderly recurrent breast cancer patients older than 75-years-old

CAREER DEVELOPMENT

European School of Oncology
learning to care

ulm university universität ulm

CERTIFICATE OF COMPETENCE IN BREAST CANCER

THIRD COHORT 2019-2020

The European School of Oncology in co-operation with Ulm University offers a structured Certificate of Competence in Breast Cancer Programme, an academically recognised curriculum of studies, which was developed with the contribution of internationally recognised physicians and scientists in the field of breast cancer.

PROGRAMME

The Programme, which is offered on a part-time basis using blended-learning modules and seminars, is divided in **three attendance seminars** (in Austria, Portugal and Germany) and **five e-learning modules**.
Over the duration of **13 months** the Programme provides a total of 381 hours of comprehensive learning, accordingly reported with a workload of 13 European Credit Transfer and Accumulation System Points (ECTS) by Ulm University.
The current edition started in March 2017 and will conclude in April 2018.

ELIGIBILITY

The Programme is designed for **physicians with experience in the field of breast cancer** (medical oncology, radiation oncology, gynaecology, senology, pathology), but it is equally accessible to graduates in **natural sciences** who are engaged in the field of breast cancer.

ADMISSION AND DEADLINES

Admission to the Certificate of Competence in Breast Cancer Programme is by competitive application only and the selection is based on eligibility criteria and the selection procedure.
Attendance is limited to **20 participants** per cohort.
Applications for the third edition will open in mid-May 2018 and submission is required by the deadline of **14 September 2018**.

CERTIFICATE

Upon successful completion of the Programme, participants will obtain an academic certificate issued by the European School of Oncology and Ulm University assigning **13 ECTS** and a diploma supplement by Ulm University.

Chairs:

F. Cardoso, PT
J. Huober, DE
W. Janni, DE
O. Pagani, CH
F.A. Peccatori, IT
E.P. Winer, US

FURTHER INFORMATION AT WWW.ESO.NET

Breast Centres Network

Synergy among Breast Units

A project of

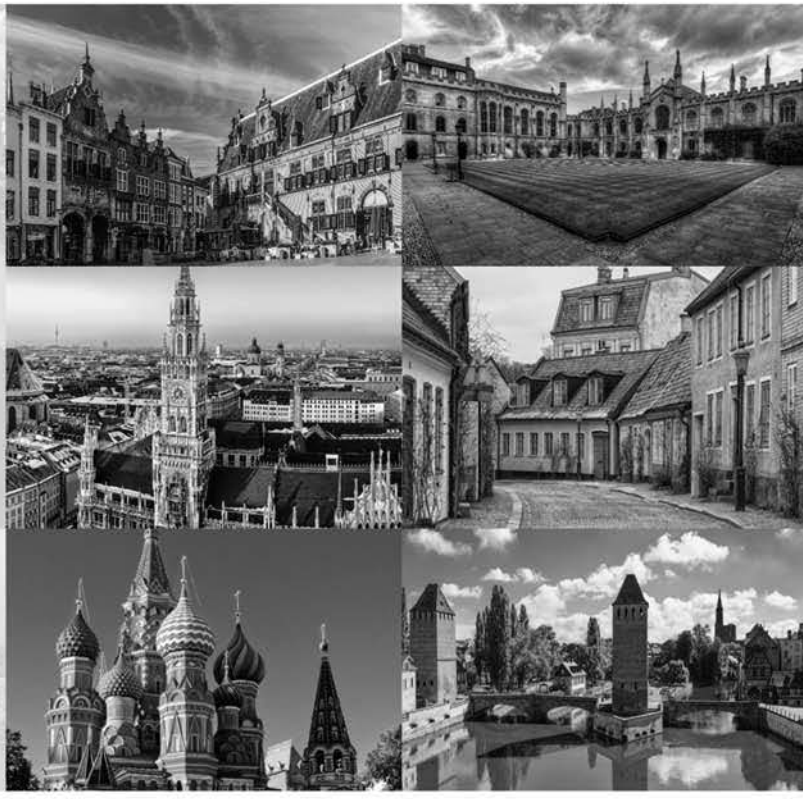
European School of Oncology

Learning to care

Need to quickly contact a breast expert collegue?

Is your Breast Unit organised according to state-of-the-art international standards?

Don't miss the opportunity to discover more and improve your Breast Unit!



Become a Breast Centres Network Member

www.BreastCentresNetwork.org

Membership is free!

Breast Centres Network is the first international network of clinical centres exclusively dedicated to the diagnosis and treatment of breast cancer. It is a project of ESO (European School of Oncology) with the aim to promote and improve breast cancer care in Europe and throughout the world.

Our network includes Breast Units (Multidisciplinary Breast Centres) that fulfill minimum requirements (see Eligibility Gate) to be considered referral centres. Organisation of Multidisciplinary Breast Units is recommended by EUSOMA, Europa Donna (European Breast Cancer Coalition) and the European Parliament. In the US, breast center accreditation is offered by the National Accreditation Program for Breast Centers.

We offer an online Breast Unit Directory that provides detailed information at a glance about our members in an attempt to broadcast the state-of-the-art international standards for multidisciplinary breast cancer care.

More than 200 centres online!

And it'll really make a difference to your center!

GO SOCIAL!
#BCN_ESO