7th WORLD CONGRESS ON BREAST CANCER

May 10-11, 2018 | Frankfurt, Germany

Scientific Tracks & Abstracts

Day 1

Breast Cancer 2018

Sessions:

Day 1 May 10, 2018

Screening, Detecting and Diagnosing Breast Cancer | Breast Cancer Therpy , Prevention and Medicine

Session Chair
Wassil Nowicky
Nowicky Pharma / Ukrainian Anti-Cancer Institute, Austria

Session Co-Chair
Ratna Parikh
Breach Candy Hospital , Mumbai, India

Session Introduction

Title: **Concerning the changing of diagnostic approach, guidelines, role and importance on decision of the different medical specialties involved (in the last 30 years) in the setting of a screening and treatment reference hospital**
Manuela Lacerda, IPATIMUP, Portugal

Title: **Melatonin enhances chemosensitivity of human endothelial and breast cancer cells by regulating genes involved in angiogenesis**
Alicia González González, Cantabria University, School of Medicine, Spian

Title: **Effects of melatonin on chemotherapy treatments in gene expression and proteomics of human breast cancer**
Javier Menéndez Menéndez, Cantabria University, School of Medicine, Spian

Title: **Blocks for relieving pain associated with breast surgery**
Baris Cankaya, Marmara University Pendik Training Hospital, Istanbul/Turkey

Title: **The BREAST-Q in perioperative period for breast conserving surgery: How patient reported outcome measures contribute to health related quality of life**
Gul Cankaya, Marmara University Pendik Training Hospital, Istanbul/ Turkey

Title: **Giant inflammatory myofibroblastic tumor of the breast case report and review of literature**
Vuka V Katic, Human Policlinic, Serbia

Title: **Accuracy of the specimen radiography in the breast-conservation surgery**
Imrana Masroor, Aga Khan University Hospital Karachi, Pakistan

Title: **Experiences in organisation of breast cancer facilities in rural India**
Ratna Parikh, Breach Candy Hospital , Mumbai, India

Title: **Preoperative ultrasound guided biopsy of axillary nodes for staging in patients with clinically negative axilla – in a tertiary care center in a third world country**
Imrana Masroor, Aga Khan University Hospital Karachi, Pakistan

Title: **Adjuvant endocrine monotherapy for postmenopausal early breast cancer patients with hormone-receptor positive: A systemic review and network meta-analysis**
Haitian Zhang, First Affiliated Hospital of Guangxi Medical University, China

Title: **Nutrition and breast cancer rates in high and low happiness countries**
Lyudmila Radkevich, Russian Academy of Sciences, Moscow, Russia

Manuela Lacerda, J Cancer Sci Ther 2018, Volume 10
DOI: 10.4172/1948-5956-C2-126

Concerning the changing of diagnostic approach, guidelines, role and importance on decision of the different medical specialties involved (in the last 30 years) in the setting of a screening and treatment reference hospital

Manuela Lacerda
Institute of Pathology and Molecular Immunology of the University of Porto, Portugal

In 1978 I started working as surgical pathologist in the cancer hospital Instituto Português de Oncologia Francisco Gentil (IPOFG), Coimbra, Portugal. At that time the patients who came to the hospital had large breast tumors and the diagnosis was made by the triple approach: The members of the multidisciplinary team were a surgeon, a radio-therapist and a medical oncologist. The pathology report was descriptive. Frozen section or biopsy of the lesion was mandatory when the first therapeutic approach was surgery or when there was no concordance in the triple approach. In 1987 the papers and the book published by David L Page and William D Dupont, became a landmark in the histoclinical approach of breast lesions. The reproducibility of the prognostic index of Nottingham proposed by Elston and Ellis was an important method for the follow-up of breast cancer. Immunohistochemistry became routine either for differential diagnostic or for therapeutic guidance. In 1990 a breast cancer screening program in the central zone of Portugal was implemented. It was one of the European pilot projects approved by the European Commission. This program covers a female population (age groups 45-70) of 320,225 women (mammography every two years). In 1994 I was designated, by the management of the program to integrate the European Working Group on breast screening pathology that elaborated European guidelines for quality assurance in breast cancer screening and diagnosis - quality assurance guidelines for pathology - European Commission. The Cancer Registry-Central Zone (R.O.R. –Zona Centro) data show the influence of breast cancer screening on the incidence and mortality of breast cancer. In the last years the multidisciplinary team also includes a radiologist and a surgical pathologist. The therapeutic approaches became much more conservative, individual driven and have cosmetic criteria. The pathology report has very well defined guidelines. There have also been changes in the way how women view their health; now, the majority is concerned with the risk of having breast cancer. The society, as a whole, has also changed to accept the difference that the name cancer implies.

Biography

Manuela Lacerda is a Specialist in Surgical Pathology. She started working at Instituto Português do Oncologia Francisco Gentil (IPOFG), Coimbra, Portugal in 1978. She was the Director of the Laboratory Department of IPOFG, Coimbra, Portugal from 1986 to 2009 and was the Director of the Service of Surgical Pathology of IPOFG, Coimbra, Portugal from 2009 to 2011. She was part of the Technical Team of the Regional Cancer Registry - Central Zone (R.O.R.Centro), Portugal from 1989 to 1995. She was the Clinical Director of IPOFG, Coimbra, Portugal from 1998 to 2001. She was part of the European Working Group on Breast Screening Pathology, which have developed European Guidelines for quality assurance in breast cancer screening and diagnosis - European Commission from 1994 to 2011. Since 2012 she was the Consultant at Instituto de Patologia e Imunologia Molecular da Universidade do Porto (IPATIMUP), Porto, Portugal. She did her PhD in 2005 from Faculty of Medicine, Porto, Portugal. She is co-author of 6 papers in national journals with scientific arbitration and 20 articles in journals of international circulation with scientific arbitration.

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Alicia González González et al., J Cancer Sci Ther 2018, Volume 10
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Melatonin enhances chemosensitivity of human endothelial and breast cancer cells by regulating genes involved in angiogenesis

Alicia González González, Alicia González, Carolina Alonso González, Carlos Martínez Campa, Javier Menéndez Menéndez and **Samuel Cos**
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Endothelial cells represent one of the critical cellular elements in tumor microenvironment playing a crucial role in the growth and progression of cancer through controlling angiogenesis. Enhancing the chemosensitivity of cancer cells is one of the most important goals in clinical chemotherapy. Melatoanin exerts oncostatic activity in breast cancer through antiangiogenic actions. Vascular endothelial growth factor (VEGF) produced from tumor cells is essential for the expansion of breast cancer. The angiopoietin/Tie-2 family play an important role in regulating vessel stability. Several studies emphasize the complementary and coordinated roles of angiopoietin-2 and VEGF during angiogenesis. Thus, the aim of the present study was to investigate whether melatonin sensitizes endothelial cells to chemotherapy by regulating angiogenesis. To accomplish this we used human umbilical vein endothelial cells (HUVEC) or cocultures of HUVEC cells with MCF-7 cells. Cell proliferation was measured by the MTT method. We selected different genes which were modulated by melatonin from an array of genes involved with the process of angiogenesis. Their expression was analyzed by RT-PCR. The migration of HUVECs was measured by the Wound Healing Assay and tubulogenesis studies were performed in a tubulogenesis multiplate system *in vitro*. Only the presence of malignant epithelial cells in the cocultures altered proliferation, and stimulated ANG-1, ANG-2 and VEGF expression and decreased Tie2 expression in endothelial cells. Melatonin 1 mM added to the coculture counteracted this effect and reduced Ang-1, Ang-2 and VEGF expression and increased Tie-2 expression. In addition, vinorrelbine and docetaxel decreased cell proliferation and melatonin led to a significantly greater decrease. Furthermore, it is important to point out that chemotherapy increases the expression of genes involved in angiogenesis such as *VEGF, ANG1, ANG2, FGFR3, NOS3 or MMP14*, and melatonin pretreatment 1 mM led to a significantly decrease. Furthermore, the migration of endothelial cells and the tube formation were reduced with the chemotherapy and melatonin pretreatment resulted in a significantly higher reduction. All these results suggest that melatonin could exert a cooperative enhancement of chemosensitivity associated with the modulation of angiogenesis. Therefore, melatonin could represent a new and promising therapeutic approach to the treatment of breast cancer.

Biography

Alicia González González is a PhD student from Cantabria University School of Medicine. Currently, she is involved in Breast Cancer research and Melatonin, specifically in the sensitizing effects of melatonin to chemotherapy and radiotherapy for its antiangiogenic and antiadipogenic actions. She has published three papers and she has presented her work in five international conferences.

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Javier Menéndez Menéndez et al., J Cancer Sci Ther 2018, Volume 10
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Effects of melatonin on chemotherapy treatments in gene expression and proteomics of human breast cancer cells

Javier Menéndez Menéndez, Carlos Martínez Campa, Carolina Alonso González, Alicia González, Alicia González González and **Samuel Cos**
University of Cantabria, Spain

Melatonin is the main secretory product of the pineal gland. It is an oncostatic agent that reduces the growth and development of various types of tumors, particularly those whose growth is dependent on estrogen. Data from nearly 500 articles published in the last 20 years, call attention to the hypothesis that melatonin interacts with estrogen signaling pathways at three different levels: 1) Acting as a selective estrogen receptor modulator (SERM), obstructing the activation of estradiol receptors, and consequently, down regulating the expression of proto- oncogenes, growth factors and genes involved in process like proliferation, invasiveness and metastasis. 2) Acting as a selective modulator of the enzymes involved in the synthesis of steroid hormones (SEEM), inhibiting the expression of some enzymes (aromatase and sulfatase estrogen) and stimulating others (estrogen sulfotransferase). 3) Interfering with the hypothalamus-pituitary-reproductive axis in such way that the synthesis of estrogens is decreased. Correspondingly to the properties mentioned, melatonin might be a very good adjuvant for chemotherapy treatments currently used in cancer. However, little is known about the consequences that melatonin might have over the molecular changes induced by chemotherapy agents at the tumor cell level. In this work, as an experimental approach, we cotreated an estrogen receptor positive cell line derived from a mammary adenocarcinoma (MCF-7 cells) with chemotherapy agents and the pineal hormone, in order to investigate whether melatonin can modulate the gene expression and the proteomic changes induced by the chemotherapy agents.

Biography

Javier Menéndez Menéndez is a young researcher in Molecular Biology and Biomedicine who is completing his PhD from Cantabria University. He is investigating about breast cancer and the sensitizing effects of melatonin in chemotherapy and radiotherapy since 2014. He has published five papers in reputed journals as well as a book chapter. Also, he has presented his works in two national congresses.

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Cankaya Baris, J Cancer Sci Ther 2018, Volume 10
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Blocks for relieving pain associated with breast surgery

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Regional and neuraxial anesthesia for pain management after breast surgery is gaining necessity. Data show improved postoperative pain control and patient satisfaction scores. Acute postoperative pain is a risk factor for chronic pain in women after breast surgery. Chronic postoperative pain develops in nearly half of patients undergoing breast surgery. Nerve blockade improves postoperative analgesia with decreased volatile anesthetic use and decreases hospital length of stay. Most commonly performed procedures are thoracic epidural catheters and paravertebral blocks, also ultrasound guided interfascial plane blocks that target pectoral nerve (Pecs) are Pecs I (between the pectoralis major) and Pecs II (between the pectoralis minor and serratus anterior muscles). The local anesthetic blocks the medial and lateral pectoral nerves, anterior divisions of the thoracic intercostal nerves from T2 to T6, long thoracic nerve, and thoracodorsal nerves thus providing analgesia. PECs blocks have shown efficient for analgesia after breast surgery. PECs easy to administer and associated with a lower incidence of complications, especially with the use of ultrasonography. Pecs block has been performed as postoperative pain management; not for a primary anesthesia. Anesthesiologists increasingly prefer Pecs over thoracic paravertebral blocks and thoracic epidural catheters. PECs have lower risk of intravascular injection.

Biography

Cankaya Baris is an Anesthesiologist with interest in perioperative medicine and patient safety. He is responsible for blue code management in his hospital. He has certifications for adult, newborn, pediatric resuscitation from European Resuscitation Council.

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The BREAST-Q in perioperative period for breast conserving surgery: How patient reported outcome measures contribute to health related quality of life

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Advances in breast cancer management have reduced breast mortality rates. The BREAST-Q is a Patient Reported Outcome Measurement (PROM) owned by Memorial Sloan-Kettering Cancer Center and the University of British Columbia. This questionnaire consists of six key themes of patient satisfaction and health-related quality of life in breast surgery: satisfaction with Breasts; satisfaction with overall outcome; psychosocial well-being; sexual well-being; physical well-being and satisfaction with care. Breast augmentation is the most common cosmetic surgery procedure performed in the United States. PROMs are effective instruments guiding therapy. They allow physicians to understand the benefits that breast surgery may have to a woman's quality of life, body image, and psychological and sexual abilities. BREAST-Q may help researchers for measuring patient satisfaction with surgery specific problems. The BREAST-Q has been translated into thirty languages. It quantifies the impact of cosmetic and reconstructive breast surgery (i.e., augmentation, reduction/mastopexy, mastectomy, reconstruction, and breast conserving-therapy), pre- and post-operatively. Despite widespread use of breast conservation therapy for stage I and stage II disease, many patients with breast cancer still receive mastectomy as a surgical treatment. Since its validation in 2009, the BREAST-Q has been used as a monitoring tool for breast surgery providing reliable information perioperatively. Its multiple modules allow researchers to widely answer clinical questions specific to mastectomy, breast reconstruction, augmentation, and reduction/mastopexy patient populations. The standardized scoring methodology is simple to use and allows for comparisons between studies. Our team is on way to complete BREAST-Q validation in Turkish population.

Biography

Cankaya Gul has been working as a Surgery Nurse for 4 years. She is working on management for breast cancer patients during perioperative period. She has completed international breast care nursing training program. She has interest in palliative care and has trainer certification.

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Vuka Katic et al., J Cancer Sci Ther 2018, Volume 10
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Giant inflammatory myofibroblastic tumor of the breast – case report and review of literature

Vuka Katic[1], **Dragan Stefanović**[2], **Ljiljana Stefanović**[2], **Ana Jovanović**[2], **Dragan Stošić**[3] and **Marina Vlajkovi**[4]
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Introduction: Primary Inflammatory Myofibroblastic Tumor (IMT) of the breast is extremely rare lesion. Only 19 cases have been reported in the English literature. It is an unusual benign tumor that belongs to the family of the benign spindle cell tumors of the mammary. Since Myofibroblastic Tumor (MFT) may show alarming morphologic features which can lead to misdiagnosis of malignancy, especially to spindle cell carcinoma, we have undertaken this study.

Case Report: We report a case of IMT of the breast in a 56 year old female patient who was admitted to our hospital due to a large lobulated lump in the right breast. Mammogram and ultrasound confirmed the solid nature of the tumor, showing a well circumscribed homogenous mobile non-tender lobulated mass, covered by thick capsule. The giant tumor was surgically removed. Macroscopic giant tumor, 8200 g of weight was surgically removed. Gross examination showed a well circumscribed firm white, yellow to grey lobular masses. After conservative excision, there has been no recurrence till now (two years have passed from operation).

Methods: Fifty surgical biopsies, taken from our patient were stained with H&E, Van Gieson, alcian blue-PAS and immunohistochemical abm by using antibodies to EMA, vimentin, desmin and Ki-67. Histopathology showed the lesion consists of a proliferation of spindle cells with the morphological and immunohistochemical features of myofibroblasts, arranged in sheets and short fascicles along with a rich inflammatory infiltrate comprising predominantly plasma cells, admixed with the inflammatory component of lymphocytes and eosinophils. The hallmark of IMT is the significant inflammatory cell component. Mitotic figures were not observed. Histopathologically, the tumor cells were positive for SM-actin, desmin and vimentin.

Conclusion: On the base of literature data (PubMed) and our experience, we have concluded that this neoplasm has the intermediate biological potential; like neoplasm of intermediate biological potential it frequently recurs and rarely metastasizes and clinical physicians should regularly follow up patients after focal resection for IMT.

Biography

Dr. Vuka Katic is professor of pathology in NIS University. She wrote 5 books till now, attended the many world and European congresses, was mentor of many doctor theses and reported more than 500 articles. She was director of Institute of Pathology. For her great success in the pathology, she received a lot of grant; the last is: professor emeritus got in October 2011. Now, she is working in private policlinic "human", in department of pathology.

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Accuracy of the specimen radiography in the breast-conservation surgery

Imrana Masroor, Saira Naz, Shaista Afzal, Sehrish Butt, Zafar Sajjad and **Anwar Ahmed**
Aga Khan University Hospital, Pakistan

Objective: The aim of this study was to evaluate the accuracy of X- ray specimen in assessing the Complete Local Excision (CLE).

Materials & Methods: It was a retrospective cross sectional study. Data of all females who underwent breast-conserving surgery for breast cancer after needle localization of mammographically visible disease was collected. Male patients, patients with mammographically invisible disease and cases with benign or inconclusive histopathology, patients with modified radical mastectomy, dense breast parenchyma and lesions with closed margins were excluded. We evaluated the specimen radiography to assess margins spiculation, distance of mass/microcalcification from excised margin, presence of mass, presence of any adjacent microcalcification and other features including histological mass size, nuclear grade and patient's age were also recorded and all were analyzed to see any association with CLE.

Results: Absence of adjacent microcalcifications and presence of mass on radiograph showed significant association with CLE however other features did not show any association. Specimen radiography was found to be a sufficient tool to predict CLE with positive predictive value of 83.3%, sensitivity of 80.65% and specificity of 81%.

Conclusion: Specimen radiography is an important and sensitive tool to predict CLE.

Biography

Imrana Masroor is currently working as an Associate Professor and Section Head of Women Imaging at Radiology Department, Aga Khan University Hospital Karachi, Pakistan. She has two fellowships in diagnostic imaging, one from College of Physician and Surgeons Pakistan and second from Royal College of Radiologist, UK. She also holds the European Diploma in Breast Imaging. She is also the program Director for the fellowship program in Women Imaging at the department. She has a number of national and international publications to her credit in field of expertize.

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7th WORLD CONGRESS ON BREAST CANCER

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Experiences in organization of breast cancer facilities in rural India

Ratna Parikh and **Praful Desai**
Breach Candy Hospital, India

India has a population of almost 1.2 billion. Nearly 70% reside in rural and semi- urban areas. Multidisciplinary therapeutic approach is a challenge in these areas because of lack of facilities and socioeconomic constraints. The objective was to initiate facilities for early diagnosis and treatment of breast cancer in these areas. We started our project in a rural area, Barshi in Maharashtra. Mobile vans were designed to reach remote areas with facilities for clinical examination, imaging, lab studies and cytology. Education was imparted for early detection and treatment of breast cancer through charts, one to one talks and videos in their native language. Most women presented in stage III–IV (70%). Nearly all women opted for a mastectomy when indicated. Patients requiring multidisciplinary therapeutic approach were referred to a comprehensive cancer center, in Mumbai. 75% had socioeconomic issues (finances, family issues, distances to travel, stay in metropolitan cities and social taboo of hair loss, post chemotherapy treatment). 20% had disease and therapy related physiologic disability. 43% could not complete therapy. Long term follow-up was feasible only in 1/3rd of patients. Over the years, diagnostic and treatment facilities have significantly improved. The rural center from a humble effort of a simple outpatient has grown into a sprawling community cancer center. Breast cancer patients can now be managed in their local environment. Training and education at all levels has been at the core by manual and technology transfers through the comprehensive cancer center to these rural areas. Women with breast cancer now report early and most complete therapy in their own environment. This effort is easily replicable and can be created in similar terrains for not only breast cancer but also many other diseases in India and other countries. The final culmination and success of this effort is proven by the actual images and success in the rural area where such a transformation has been achieved.

Figure 1: Mobile vans used for the stated objective for breast cancer, in a rural area, Barshi in Maharashtra.

Figure 2: Initial development – availability of only an OPD complex.

Figure 3: A gentle start to a robust end. A fully-equipped cancer center is now available in Barshi.

Biography

Ratna Parikh has completed her Postgraduation in General Surgery from Grant Medical College, Mumbai, India in the year 1994. She worked at BYL Nair Charitable Hospital for 6 years and has trained undergraduate as well as postgraduate students. She worked with Dr. Praful B Desai, Cancer Surgeon and ex Director of the renowned Tata Memorial Cancer Centre, Mumbai. She visited MD Anderson and Memorial Sloan Kettering Cancer Centre's to train in breast cancer. She was bestowed the Fellow of the American College of surgeons in 2012. She has presented national and international papers and published articles and case studies in Indian journals. She is a Coordinating Editor of the book Practical Clinical Oncology by Dr. Desai. She contributed four chapters in the book including on breast cancer. Currently, she is attached to Breach Candy Hospital in Mumbai.

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Imrana Masroor et al., J Cancer Sci Ther 2018, Volume 10
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Preoperative ultrasound guided biopsy of axillary nodes for staging in patients with clinically negative axilla – in a tertiary care center in a third world country

Imrana Masroor, Shaista Afzal, Asma Munir, Romana Idrees, Poonam Khan and **Shaista Khan**
Aga Khan University Hospital, Pakistan

Objective: The aim of the current study is to determine the feasibility and accuracy of ultrasound guided core biopsy for staging the axilla in clinically node negative patients with invasive breast cancer.

Introduction: Historically, axillary lymph node staging was performed by means of axillary lymph node dissection. Because of the high morbidity of this procedure, Sentinel Lymph Node Biopsy (SLNB) has become the standard of care in patients with clinically node-negative breast cancer. However; SLNB also has some morbidity and anesthetic risk. Not only is it expansive and time consuming, SLNB can be complicated by formation of a seroma, sensory nerve injury, lymphedema and limitation of the range of shoulder motion. Furthermore, in order to avoid a second procedure many centers rely on the availability of frozen section for the analysis of the node. In our part of the world not all the centers have the facility of frozen section available. Moreover, the analysis of published data shows that the accuracy of frozen section with a combination of H&E staining and immunohistochemistry on sentinel lymph nodes lay between 73 to 96%. Pre-operative identification of axillary node positivity in patients with clinically negative nodes would allow one-stage axillary clearance, avoiding the sentinel node biopsy (SLNB) step. As clinical examination is unreliable in determining node positivity, pre-operative diagnosis presently depends on imaging of the axilla using imaging modalities. Pre-operative staging of suspicious lymph nodes detected by US guided core biopsy can decrease the need for SLNB by 21% to 70%. The aim is to determine the accuracy and feasibility of ultrasound guided core biopsy to stage the axilla in clinically node negative patients, comparing with final histopathology as gold standard.

Material & Methods: It was a non-randomized, prospective interventional study, done at Radiology Department of Aga Khan Hospital. All the patients who were diagnosed with breast cancer (histologically proven) and had clinically negative axilla and had ipsilateral positive axillary ultrasound underwent axillary lymph node biopsy. If the result was negative they were subjected to SLNB, histopathology result were used as gold standard.

Results: The sensitivity of ultrasound guided biopsy was 88%, specificity 100%, PPV 100%, NPV 89.28% and diagnostic accuracy 94%.

Conclusion: Axillary lymph node biopsy under ultrasound guidance is standard of care in clinically negative axilla avoiding unnecessary axillary dissection.

Biography

Imrana Masroor is currently working as an Associate Professor and Section Head of Women Imaging at Radiology Department, Aga Khan University Hospital Karachi, Pakistan. She has two fellowships in diagnostic imaging, one from College of Physician and Surgeons Pakistan and second from Royal College of Radiologist, UK. She also holds the European Diploma in Breast Imaging. She is also the program Director for the fellowship program in Women Imaging at the department. She has a number of national and international publications to her credit in field of expertize.

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Scientific Tracks & Abstracts
Day 2

Breast Cancer 2018

Sessions:

Surgery Choices for Breast Cancer | Screening, Detecting and Diagnosing | Breast Cancer Breast Cancer Therpy , Prevention and Medicine

Session Chair
Peter Onneken
Institute of Diet and Health, Germany

Session Co-Chair
Peter Sandbichler
St.Vinzenz, Austria

Session Introduction

Title: **A predictive model to identify who would benefit from primary tumor surgery among patients with metastatic breast cancer at diagnosis: A population-based analysis**
Lingxiao Zhang, Xi'an Jiaotong University, China

Title: **Immediate breast reconstruction with laparoscopic harvested omental flap after breast cancer surgery**
Peter Sandbichler, Department of surgery, Hospital "St.Vinzenz, Austria

Title: **Breast cancer: Correlation of ultrasonographic features with molecular subtype**
Maria Inês Branco, Radiology Department- Centro Hospitalar Vila Nova de Gaia/ Espinho, Portugal

Title: **PITX2 DNA-methylation, a novel validated predictive marker in high-risk breast cancer patients to assess the benefit of anthracycline-based chemotherapy**
Olaf G. Wilhelm, Therawis Pharma GmbH, Germany

Title: **Role of mammary gland stem/progenitor cells in tumorigenesis**
LuZhe Sun, University of Texas Health Science Center, USA

Title: **Expression of ganglioside GD2, as a novel cancer stem cell marker in breast carcinomas**
Maryam Mansoori, Iran University of Medical Sciences, Tehran, Iran

Lingxiao Zhang et al., J Cancer Sci Ther 2018, Volume 10
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A predictive model to identify who would benefit from primary tumor surgery among patients with metastatic breast cancer at diagnosis: A population-based analysis

Lingxiao Zhang and **Wen Zhao**
Xi'an Jiaotong University, China

Purpose: The prognostic role of primary tumor surgery among female patients with metastatic breast cancer is controversial. We ought to investigate whether primary tumor surgery can improve the overall survival and identify a subset of patients that will benefit from primary tumor surgery.

Methods: We conducted a retrospective, population-based cohort study by analyzing the 2010-2014 surveillance, epidemiology, and end results (SEER) program data. Using Kaplan-Meier curves, we investigated whether the primary tumor surgery could improve the overall survival. Analyzing the clinicopathological feathers by using Cox proportional hazards regression, we developed and validated a prediction model that predicts survival benefit in patients who has undergone primary tumor surgery and identified patients that would benefit from primary tumor surgery in the non-surgery cohort.

Results: Of 7217 SEER patients enrolled in our study, 3065 (32.5%) underwent breast surgery and 4152 (57.5%) did not. Patients who had surgery achieved both overall survival benefit ($p<0.001$) and breast cancer-specific survival ($p<0.001$). Age at diagnosis, race, differentiation grade, T stage, N stage, molecular subtype, metastatic sites, chemotherapy and radiation were associated with overall survival of patients among the surgery cohort. A prediction model was developed based on these factors and had been validated in an independent dataset. The model identified a subset of patients with remarkable survival and a subset of patients who would benefit from the primary tumor surgery.

Conclusions: We have developed a predictive model to identify patients that will achieve long-term survival benefit from primary tumor surgery. This model will provide guidance to physicians considering whether to conduct a primary tumor surgery for female patients with metastatic breast cancer.

Biography

Wen Zhao is pursuing her Master's degree in Clinical Medicine (Oncology) at Xi'an Jiaotong University. She is under the guidance of Dr. Jin Yang. Dr. Jin Yang and her group concentrate on the effect of angiomotin protein family on tumorigenesis and new therapy directions of triple negative breast cancer. She is interested in triple negative breast cancer, characterized by negative condition of ER, PR and HER-2, lack of effective targets and has done some researches on it. After reading plenty of articles, she found PIM1 might be an effective target playing a significant role in triple negative breast cancer.

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7th WORLD CONGRESS ON BREAST CANCER

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Immediate breast reconstruction with laparoscopic harvested omental flap after breast cancer surgery

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Introduction: We present here a rarely used technique for breast reconstruction after complete or subtotal subcutaneous mastectomy for breast cancer utilizing a laparoscopically harvested omental flap.

Indication: The procedure was performed in selected patients with multicentric carcinomas, large, central tumors (also post treatment with neoadjuvant chemotherapy), tumors with extensive intraductal component, diffuse ductal carcinoma *in situ* (DCIS), and in patients desiring the procedure. To date, 58 procedures (37 complete and 21 partial mastectomies) have been performed.

Surgical Procedure: After the sentinel node biopsy, laparoscopy was performed in order to estimate the size of the omentum. The omentum was dissected, preserving the right gastroepiploic vessels as the pedicle of the omental flap. After performing the subcutaneous mastectomy through an inframammary incision, a subcutaneous tunnel was created, and the omentum pulled out through a 2 to 3 cm paraxiphoidal incision, and placed within the breast defect.

Results: The cosmetic result was excellent to satisfactory in the majority of cases. There was one loss of the omental flap due to fat necrosis, and one gastric perforation was managed laparoscopically. In five patients an additional augmentation with lipofilling became necessary. Small skin necroses could be conservatively treated. Postoperative irradiation in patients with positive lymph nodes and subtotal mastectomy was performed without complications. There was no local recurrence to date.

Summary: In selected patients, this technique produces good results creating a breast with a natural, soft consistency, and with minimal donor site morbidity. It provides an esthetically appealing supplement to the established methods. Difficulties include preoperative estimation of the size of the omentum, however initially inadequate volume frequently increases within the first 6 months. The technique can only be applied for unilateral reconstruction.

Biography

P Sandbichler has completed Medical studies and Doctorate at the Medical University of Innsbruck from 1975–1981. He completed his Surgical residency at the University Hospital Innsbruck, Department for Visceral and Transplant Surgery from 1982–1990. He is a Managing Senior Physician for Surgery at the Hospital Hall near Innsbruck from 1990-2000. He is a Professor of Surgery, 1997. He is the Head of the Surgical Department in the Hospital St. Vinzenz, Zams since January 2000. His focus is on oncologic and laparoscopic surgery.

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Breast cancer: Correlation of ultrasonographic features with molecular subtype

Inês Vieites Branco[1], Luciana Barbosa[1], Lara Batista[1], Anabela Ferrão[2], Conceição Leal[2], Ana Teresa Aguiar[2] and **António Guimarães[2]**
[1]Centro Hospitalar Vila Nova de Gaia, Espinho, Portugal
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Aims & Objectives: The purpose of this study is to correlate the ultrasonographic features of previously diagnosed malignant breast cancers with their hormone receptor expression.

Methods & Materials: The malignant breast nodules diagnosed by ultrasonographic-guided core biopsy, at our regional oncologic center, from July to December 2016 (n=172), had their ultrasound features retrospectively reviewed according to the breast imaging- reporting and data system (BI-RADS) lexicon. For each case the molecular subtype was obtained, consisting of positivity/negativity for hormone receptors (HR) and human epidermal growth factor receptor 2 (HER2), and correlated to the ultrasonographic characteristics. The statistical analysis was conducted using the software Statistical Package for Social Science (SPSS) v24, and a descriptive analysis using percentages was carried out, applying chi-square test for categorical data. A significance level of $p<0.05$ was used to determine significance.

Results: HER2 and HR positive lesions showed more frequently an irregular morphology (78.6%, p=0.002) and non-parallel orientation (78.6%, p=0.033). HER2 positive and HR negative lesions presented more commonly an irregular morphology (94.4%, p=0.000), non-parallel orientation (88.9%, p=0.01) and lobulated margins (61.1%, p=0.016). HER2 negative and HR positive lesions had more often an irregular morphology (85.4%, p=0.000), non-parallel orientation (88.8%, p=0.000), lobulated margins (49.4%, p=0.000) and posterior attenuation (65.2%, p=0.004). HER2 and HR negative (triple negative) lesions showed mainly an irregular morphology (94.1%, p=0.000), non-parallel orientation (88.2%, p=0.002), lobulated margins (58.8%, p=0.028), and heterogeneous echotexture (82.4%, p=0.008).

Conclusion: Knowledge of distinctive ultrasonographic phenotypes according to molecular subtypes could be important for earlier diagnosis and treatment, and ultimately improve outcomes.

Biography

Inês Vieites Branco is currently a third year Radiology Resident at Centro Hospitalar Vila Nova de Gaia-Espinho, Portugal, and has completed her Master's degree in Medicine from Instituto de Ciências Biomédicas de Abel Salazar- Porto, Portugal.

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PITX2 DNA-methylation, a novel validated predictive marker in high-risk breast cancer patients to assess the benefit of anthracycline based chemotherapy

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Background: The term epigenetics describes dynamic alterations in a cell that switch genes on and off without changes in the DNA sequence. Examples of mechanisms that produce such changes are histone modification and DNA-methylation, each of which alters gene expression. A variety of cellular processes are influenced by epigenetic changes, including gene expression, cellular differentiation, genomic imprinting and embryogenesis; DNA-methylation plays a crucial role in the development of a variety of cancers, including breast cancer. Significant evidence has accumulated that methylation of the *PITX2* (paired-like homeodomain transcription factor 2) gene, an epigenetic event, might serve as a novel predictive and prognostic biomarker in high-risk breast cancer patients. (Inter) national guidelines recommend anthracycline-based chemotherapy for high-risk breast cancer patients as the standard-of-care, but not all patients do equally benefit from such a chemotherapy.

Materials & Methodology: The novel therascreen® PITX2 RGQ PCR assay is a quantitative *in vitro* methylation specific real time PCR test (qMSP), intended for the determination of the percent methylation ratio (PMR) in the PITX2 promoter 2 expressed by primary breast cancer tumor tissue (FFPE-material). After bisulfite exposure of extracted DNA to distinguish between methylated and unmethylated PITX2 DNA, the percent methylation ratio (PMR) of the PITX2 gene promoter 2 is quantified by qMSP. The PMR obtained does provide information to the treating physician about whether a patient is likely to respond to anthracycline-based chemotherapy.

Results & Conclusions: Data will be presented for 205 high-risk lymph node-positive, estrogen receptor-positive, HER2-negative breast cancer patients, treated with adjuvant anthracycline-based chemotherapy. The PITX2 pre-defined cut-off value of PMR=12 demonstrated a statistically significant differentiation between low- and high-risk breast cancer patient for the primary endpoint DFS, also for patients treated with endocrine therapy in addition to anthracycline-based adjuvant therapy. High-risk lymph node-positive, estrogen-receptor-positive, HER2-negative breast cancer patients, with PITX2 methylation defined as low (PMR≤12), are sufficiently treated with anthracycline-based chemotherapy, irrespective if treated with additional tamoxifen. High-risk lymph node-positive, estrogen receptor-positive, HER2-negative breast cancer patients with PITX2 methylation defined as high (PMR>12) should avoid anthracycline-based chemotherapy. These patients are recommended to switch to other chemotherapy regimens, since with this PITX2-characteristics, the patient has a lower probability to respond to anthracycline-based chemotherapy.

Biography

Olaf G Wilhelm is the Founder and Chief Executive Officer of Therawis Pharma GmbH, Munich. He was also the Co-Founder of Wilex Biotechnology GmbH and its Managing Director from October 1 1997 until April 8 2001 and has been Chief Executive Officer of WILEX AG since April 9 2001 (Wilex AG). He managed two company acquisitions, several international development and commercialization partnerships and listed Wilex AG on the public stock exchange. He received his MD from the Technical University of Munich (TUM) and was appointed Extraordinary Professor of Gynecology at the TUM in 2001. From 1990 to 1997, he was employed as Senior Physician for Obstetrics and Gynecological Oncology at the Department of Obstetrics & Gynecology (Frauenklinik) at the Medical School of the University Hospital Klinikum rechts der Isar at the TUM. While at the Technical University of Munich, he was also a member of the Clinical Research Unit of the Frauenklinik. From 1987 to 1990, he worked as a Scientist for Eli Lilly and Company, Indianapolis, Indiana/USA. He received the Midwest Trainee Award of the American Federation for Clinical Research and has authored over 70 publications. In 2011, the Technical University of Munich awarded him the title TUM Entrepreneur of Excellence.

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Role of mammary gland stem/progenitor cells in tumorigenesis

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Aging is a major risk fact for breast cancer. Recent research implicated that adult mammary stem cells (MaSCs) might be responsible for the initiation and progression of certain types of breast cancer. In this study, MaSC-enriched basal cells were utilized for the evaluation of MaSC frequency and function during aging by *in vitro* mammosphere formation and 3D-ECM sphere differentiation assays and by *in vivo* cleared mammary fat pad transplantation (IVT) as we reported recently. We found that the basal-to-luminal cell ratios analyzed with flow cytometry and the frequency of MaSCs analyzed with the *in vitro* assays increased steadily with increasing age in various strains of mice. Subsequent IVT using mammosphere or 3D-ECM structures formed by young (2-4 months) or old (25-32 months) MaSCs derived from C57BL/6 mice showed that the regenerated glands from old MaSCs had significantly higher number of spontaneous atypical ductal hyperplastic lesions than those from young MaSCs. These findings indicate that aged MaSCs can serve as the cell of origin for early neoplastic transformation in breast tissue. Subsequent whole genome transcriptome analysis with the second generation sequencing revealed age-associated differential expression of genes involved in immune, inflammatory, and wounding responses in both mammosphere-forming cells and stromal cells suggesting that these may be the main cellular processes contributing to the dysfunctional MaSC phenotypes. Consistently, short-term (5-10 days) treatment of old C57BL/6 mice with rapamycin, an anti-inflammation drug, reversed phenotypic changes associated with aged mammary gland. Histological analysis of regenerated glands by aged MaSCs derived from control and rapamycin-treated mice showed a significant decrease of early neoplastic lesions in rapamycin-treated group. In conclusion, our findings suggest that aging causes MaSC to form early neoplastic lesions, which can be inhibited by rapamycin treatment.

Biography

LuZhe Sun has received his PhD in Physiology from Rutgers University and UMDNJ-Robert Wood Johnson Medical School in 1990 and obtained his Postdoctoral training in Baylor College of Medicine in the US. He is currently Professor, Dielmann Endowed Chair in Oncology, and Associate Director for Basic Research at NCI-Designated Cancer Center. His research is focused on investigating molecular mechanisms of tumorigenesis and metastasis, and novel experimental therapeutics in various models of carcinomas. His research has been supported with multi-million dollar grants from NIH, DOD, CPRIT and other private foundations. He is an elected AAAS Fellow.

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Expression of ganglioside GD2, as a novel cancer stem cell marker in breast carcinomas

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Introduction: Cancer stem cells (CSCs) are attractive for many researchers because of their diagnostic, prognostic and therapeutic implications. Here, we aim to investigate the local expression of ganglioside GD2, as the recently proposed breast CSC (BCSC) marker, through the assessment of GD2 synthase mRNA, the key enzyme involved in GD2 synthesis.

Material & Methods: Fresh tumor tissues along with normal adjacent tissues from 65 patients who underwent surgery for breast cancer were collected. Total RNAs of tumoral and normal tissue samples were extracted and analyzed using real-time PCR. The mRNA expression pattern of GD2 was compared in tumoral and control tissue samples using ΔΔCT method. The relevance of GD2 synthase level with clinical characteristics of the patients was also evaluated.

Results: The expression level of GD2 synthase was significantly higher in breast cancer tissue samples compared to normal adjacent tissues (4.92-fold change, $p<0.001$). GD2 synthase expression was also significantly higher in advanced grades tumor (2 and 3) ($p=0.001$) and in patients at stages III and IV compared to stages I and II ($p=0.001$). Whereas, the correlation between GD2 synthase and other clinicopathologic data was not statistically significant, such as for age ($p=1.000$), type of carcinoma ($p=0.934$), lymphatic invasion ($p=0.139$) and tumor size ($p=0.066$).

Conclusion: The higher expression of GD2 synthase in tumoral tissue samples of breast cancer patients further potentiates it as a BCSC marker which could be used for clinical implications such as diagnosis, monitoring and prognosis of breast cancer.

Biography

Mansoori M is pursuing her last semester of PhD in Iran University of Medical Sciences, Tehran Iran. She has ranked 5th in PhD entrance exam among 500 candidates. She has published four papers in reputed journals.

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