

Table of Contents

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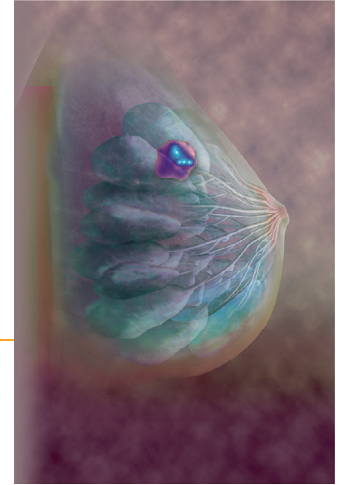


Illustration by Erin Moore

Reviews

- 101 Experiences of Women With Breast Cancer Using Telehealth: A Qualitative Systematic Review
Aérica de Figueiredo Pereira Meneses, Franklin Fernandes Pimentel, João Pedro Ferreira da Cruz, Francisco José Candido dos Reis
- 108 Diagnostic Performance of PET/MRI in Breast Cancer: A Systematic Review and Bayesian Bivariate Meta-analysis
Dan Ruan, Long Sun

Original Studies

- 125 Investigation of mRNA Expression Levels of Tip60 and Related DNA Repair Genes in Molecular Subtypes of Breast Cancer
Ece Miser-Salihoglu, Semra Demokan, Hasan Karanlik, Bensu Karahalil, Semen Önder, Sevde Cömert, Sevgi Yardim-Akaydin
- In eukaryotic cells, the overexpression or deprivation of DSBs repair genes is linked closely to a higher risk of cancer. In this study, mRNA expression levels of Tip60 and related DNA repair genes in tumor and matched-normal tissues of 58 patients with BC were measured. Results suggest that CHK2 may be a candidate marker in the molecular classification of BC.
- 135 COVID-19 Incidence and Mortality in Patients Operated on for Breast Cancer. Comparison with the General Population
Israel Barco, Carolina Chabrera, Antonio García-Fernández, Manel Fraile, Carmen Vidal, Claudia Beatriz Mitru, Oriol Porta, Marc García-Font
- One thousand forty-three BC patients had a Covid test and made our study group, which was conveniently compared with the COVID-19 tested background feminine Catalan population. Covid-19 incidence and mortality were indeed higher among BC patients, although BC per se without metastases was not linked to increased mortality. Metastases and nurse home dwellings were significantly associated with mortality.
- 143 Circ_0001777 Affects Triple-negative Breast Cancer Progression Through the miR-95-3p/AKAP12 Axis
Zhuorong Chen, Xumeng Gong, Chun Cheng, Yinghui Fu, Wanming Wu, Zhihui Luo
- We found that circ_0001777 positively regulates AKAP12 through sponge miR-95-3p, thereby inhibiting TNBC progression. These findings provide new targets for follow-up research and treatment of TNBC.

- 155 **Clinical Utility of Genomic Recurrence Risk Stratification in Early, Hormone-Receptor-Positive, Human Epidermal Growth Factor Receptor 2-Negative Breast Cancer: Real-World Experience**
Khalil Choucair, Seth J. Page, Bassam I. Mattar, Christopher S. Dakhil, Nassim H. Nabbout, Jeremy M. Deutsch, Quoc V. Truong, Phu V. Truong, Dennis F. Moore Jr., Michael W. Cannon, K. James Kallail, Joseph A. Moore, Shaker R. Dakhil, Radwan Diab, Syed Kamran, Pavan S. Reddy
This study aimed to compare clinical risk and genomic risk assessment methods in estimating the risk of recurrence in patients with early-stage hormone-receptor positive /Human Epidermal Growth Factor 2-negative breast cancer following surgical resection, in order to estimate adjuvant chemotherapy benefit. Comparing both methods in a sample of 501 patients with early-stage disease, there was statistically significant concordance between the different prognostication methods. However, in patients with established low clinical risk and those with grade 1 histology, <10% and <5% of patients had a high genomic risk of recurrence, respectively. Further studies are needed to delineate clinical utility, or lack thereof, for routine testing in patients with low grade/low clinical risk of recurrence.
- 162 **USP22 Contributes to Chemoresistance, Stemness, and EMT Phenotype of Triple-Negative Breast Cancer Cells by egulating the Warburg Effect via c-Myc Deubiquitination**
Jie Li, Runfang Gao, Jing Zhang
Few studies focus on the role of USP22 in TNBC at present. The expression of USP22, stemness genes, and EMT-related markers was analyzed by RT-qPCR and/or western blot. It showed that USP22 is involved in chemoresistance, stemness, and EMT phenotype via regulation of glycolysis by c-Myc deubiquitination in TNBC. It is therefore conceivable that USP22 may be considered a potent target for the treatment of TNBC.
- 176 **Early Toxicity and Patient-Reported Cosmetic Outcomes in Patients Treated With Adjuvant Proton-Based Radiotherapy After Breast-Conserving Surgery**
Mutlay Sayan, Sarah Kilic, Yin Zhang, Bo Liu, Imraan Jan, Mridula George, Shicha Kumar, Bruce Haffty, Nisha Ohri
Cosmesis after proton-based adjuvant breast radiotherapy is not well-characterized. We retrospectively reviewed cosmetic outcomes of patients treated with adjuvant proton-based breast radiotherapy. Acute toxicities and cosmetic outcomes were good to excellent as reported by both physicians and patients.
- 181 **The Impact of Limited Language Proficiency in Screening for Breast Cancer**
Jose L. Cataneo, Hanna Meidl, Ana Sofia Ore, Andreea Raicu, Klara Schwarzova, Celeste G. Cruz
The national burden of limited English-language proficiency (LEP) in screening for breast cancer remains unknown. Therefore, utilizing a national interview survey database would allow for this to be explored. The results show women with limited English proficiency are less likely to undergo mammography in their lifetime. Particularly, Spanish speaking women. These results demonstrate the need to target interventions in vulnerable subgroups to bridge this gap.
- 189 **Downregulated miR-367-3p, miR-548aq-5p, and miR-4710 in Human Whole Blood: Potential Biomarkers for Breast Cancer With Axillary Lymph Node Metastasis**
Bin Yang, Ya-Wen Wang, Lin-Hui Qian, Yao Xu, Xu Chen, Yan-Duo Chen, Can Liu, Ya-Ru Tian, Kai Zhang
It remains to be determined whether whole blood miRNAs could be biomarkers in breast cancer axillary lymph node metastasis (ALNM). Here it was found that miR-367-3p, miR-548aq-5p and miR-4710 were downregulated in breast cancer with ALNM. The three-miRNA signature showed better predictive value. MiR-367-3p, miR-548aq- 5p and miR-4710 and the three-miRNA signature may serve as biomarkers for breast cancer with ALNM.

- 199 **AMACR Expression is a Potential Diagnostic Marker in Apocrine Lesions of Breast, and is Associated with High Histologic Grade and Lymph Node Metastases in Some Invasive Apocrine Breast Cancers**
Gabriel Lerner, Haiming Tang, Kamaljeet Singh, Reza Golestani, Samantha St Claire, Peter A. Humphrey, Donald Lannin, Radoslav Janostiak, Malini Harigopal
Analysis of AMACR, gross cystic disease fluid protein 15, and AR expression and clinicopathologic features was studied in a large cohort of apocrine lesions of the breast which revealed AMACR expression in the majority of apocrine carcinoma and apocrine DCIS, with minimal expression in non-apocrine TNBC, IDC, NST, and benign breast tissue. In the TCGA data analysis of apocrine carcinoma, AMACR mRNA expression was also significantly higher in molecular apocrine carcinomas relative to basal and luminal type.
- 211 **Insurance Coverage of Prophylactic Mastectomies: A National Review of the United States**
Michael Ha, Ledibabari M. Ngaage, Emily R. Finkelstein, Marissa Klein, Annie Yanga, Shannon M. Colohan, Suliat M. Nurudeen, Julia H. Terhune, Sheri Slezak, Yvonne M. Rasko
Prophylactic mastectomy (PM) may be a suitable risk-reducing procedure. However, there are substantial discrepancies between national society recommendations and insurance company requirements. Onehundred insurance company policies on PM were evaluated, yielding significant variability in both indications and medical necessity criteria between insurers. The decision to undergo a PM must be carefully considered and should not be influenced by insurance coverage.
- 219 **Molecular Imaging of HER2 Expression in Breast Cancer patients Using the [^{99m}Tc] Tc-Labeled Small Peptide**
Javad Biabani Ardakani, Seyed Mohammad Abedi, Alireza Mardanshahi, Leyla Shojaee, Ehsan Zaboli, Alireza Khorramimoghaddam, Anahita Nosrati, Hamideh Sabahno, Elahm Sadat Banimostafavi, Seyed Jalal Hosseinimehr
The accurate determination of HER2 status can predict response to treatment with HER2-targeted therapy for HER2-positive breast cancer. Twenty-four women with suspected primary breast cancer received an intravenous injection of new ^{99m}Tc-radiolabeled peptide. It was able to detect HER2 status in primary tumors at an acceptable level the finding was agreed with immunohistochemistry of tumor samples.
- 231 **Is Sentinel Lymph Node Biopsy Necessary in Patients who Undergo Prophylactic Mastectomy?**
Vrinda Madan, Eleftherios P. Mamounas
This study assessed the utility of sentinel lymph node biopsy (SLNB) during prophylactic mastectomy (PM). We conducted a retrospective review of 146 patients who underwent PM without SLNB. Pathology findings revealed no incidence of occult invasive breast cancer suggesting limited utility of routine SLNB. We also assessed preoperative imaging, underscoring breast MRIs as a non-invasive tool to detect occult malignancy.

Available Exclusively Online at www.clinical-breast-cancer.com

- e37 **Improving Decision-making in Prepectoral Direct-to-implant Reconstruction After Nipple Sparing Mastectomy: The Key Role of Flap Thickness Ratio**
Domenico Pagliara, Rino Aldo Montella, Giorgia Garganese, Sonia Bove, Melania Costantini, Pierluigi Maria Rinaldi, Valentina Pino, Federica Grieco, Corrado Rubino, Marzia Salgarello
We analyzed the preoperative breast envelope and the intraoperative mastectomy flap thickness of 100 patients who underwent prepectoral breast reconstruction after nipple sparing mastectomy. We found as strong predictor of mastectomy flap necrosis the flap thickness ratio.

e45 **The Role of Imaging in the Diagnosis of Primary and Secondary Breast Angiosarcoma: Twenty-Five-Year Experience of a Provincial Cancer Institution**

Helena Bentley, James Roberts, Malcolm Hayes, Christine Wilson, Christine Simmons, Alan Nichol, Alannah Smrke, Tetyana Martin

We evaluated the imaging findings of patients diagnosed with primary breast angiosarcoma (PBA) and secondary breast angiosarcoma (SBA) within the province of British Columbia, Canada during a 25-year period in a multi-center, retrospective study. Without specific clinical context, the imaging findings of PBA and SBA were observed to be non-specific. Given non-specific imaging findings, awareness of the disease and clear and timely communication between radiologists and clinicians is required to ensure appropriate diagnosis and management.