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The symbolism of Brasília in the history of Brazilian Breast Cancer Symposium 2024

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The city of Brasília was built between 1957 and 1960, under the efforts of the Brazilian president Juscelino Kubitschek and the sweat of workers from various parts of the country, with the aim of transferring the federal capital, from Rio de Janeiro to the central plateau of Brazil. With Lúcio Costa's urban design and Oscar Niemeyer's futuristic architecture, an innovative city was born, ahead of its time. The official inauguration was on April 21, 1960, the day of the death of Tiradentes—leader of the “Inconfidência Mineira,” who defended the country's independence in the 18th century. In practice, the symbolism of this date is very clear and reflects in Brasília the ideal of freedom of a people and the courage of a nation, which spares no effort to fulfill its deepest dreams¹.

In the scientific field, this same journey was experienced by the Brazilian Breast Cancer Symposium (BBCS). Born in Goiânia, in 2010, under the name Goiânia Breast Cancer Symposium, the symposium grew to become the largest breast cancer research event in Latin America^{2,3}.

Always with the aim of maintaining an event that brought high scientific value, in an intimate style, in 2018, important changes were implemented—the name for BBCS, with an explicit reference to an inclusive positioning of health professionals and

researchers from all over Brazil. We also moved to the bucolic and historic city of Pirenópolis, so that the interaction between the various participants was even greater.

With the growth of BBCS, the beloved tourist town became too small to accommodate all our guests. Thinking about the comfort, safety, and compliance of everyone involved, the event's Organizing Committee overcame the new challenges and held this year's edition in Brasília—64 years after the city's inauguration and 15 years after the first edition of the event.

The quality of the work presented is also worth highlighting, using previously tested and validated criteria⁴. Furthermore, the large number of awards and the broad emphasis on researchers in scientific programming stand out. After all, being a research event, nothing fairer than valuing the researcher with what is most dear to them: space and opportunity to publicize their study and form new partnerships, as well as resources to finance and develop their projects.

For 2025, inspired by the architecture and symbolism of the federal capital, BBCS will follow its principles of freedom and courage, consolidating the event in the heart of the country. Don't miss the opportunity to participate in this story and come see what awaits you!

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MAIN AUDITORIUM

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Effect of vitamin D supplementation on the pathological complete response to neoadjuvant chemotherapy in women with breast cancer: a randomized clinical trial

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Objective: The objective of this study was to evaluate the effect of vitamin D (VD) supplementation on the pathological complete response (pCR) rate in women with breast cancer (BC) undergoing neoadjuvant chemotherapy (NCT).

Methodology: A randomized clinical trial was conducted on 80 women aged ≥ 45 years with a histological diagnosis of BC, who were eligible for NCT. Women were randomized to one of two groups that received either daily supplementation with 2,000 IU of cholecalciferol (VD, $n=40$) or placebo ($n=40$) during the chemotherapy period (6 months). The primary outcome measure was pCR. Serum 25-hydroxyvitamin-D [25(OH)D] was measured at two time points, after BC diagnosis and at the end of chemotherapy. Clinical, anatomopathological, immunohistochemical, and chemotherapy data were collected. A per-protocol analysis was performed using Student's t-test, χ^2 test, ANOVA, and logistic regression (OR, odds ratio). Study registration: RBR-10k4gqdg. **Results:** Out of the 80 randomized women, 75 completed chemotherapy and underwent surgery. Mean baseline 25(OH)D values indicated hypovitaminosis D in both groups (VD group: 19.6 ± 5.8 ng/mL and placebo: 21.0 ± 7.9 ng/mL, $p=0.331$). After 6 months of intervention, there was a significant increase in 25(OH)D values in the VD group compared with the placebo (28.0 ± 8.7 vs. 20.2 ± 6.1 ng/mL, $p=0.032$). The pCR rate was higher in women supplemented with VD when compared with the placebo (55.3% vs. 32.4%, $p=0.046$). In logistic regression analysis adjusted for variables that interfere with pCR (anatomopathological, immunohistochemical, and chemotherapy regimens), women with 25(OH)D values ≥ 20 ng/mL were more likely to achieve pCR than women with VD deficiency (OR 0.10, 95%CI 0.02–0.61, $p=0.013$). **Conclusion:** In this study, women with BC undergoing NCT and receiving supplementation with 2,000 IU of VD had a higher pCR rate than women in the placebo group. Women with 25(OH)D values >20 ng/mL were more likely to achieve a pCR than women with VD deficiency. Our results support the evidence that serum VD levels should be assessed during NCT and supplementation may be beneficial for attaining pCR in women with BC. Further studies are needed to validate these results because confirmation of this finding is of direct clinical relevance and has possible therapeutic implications.

Keywords: breast cancer; vitamin D; pathological complete response; neoadjuvant chemotherapy.

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Breast cancer screening based on physical examination of the breast performed by community health workers: Itaberaí Project

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Objective: The objective of this study was to evaluate the effectiveness of screening actions based on physical breast examination (PBE) performed by community health workers (CHW) for the reduction of advanced tumors (Stages III–IV) and the reduction of mortality rate. **Methodology:** This is a randomized, phase III, open-label clinical trial. Women aged 40 years or older, without a diagnosis of breast cancer, and assisted in their homes by CHW are eligible. For the randomization, the headquarters where the National Health Strategies (NHS) are located were randomized (by drawing) into control group (CG) and intervention group (IG). The intervention consisted of performing the PBE by female CHW, who receive continuous theoretical-practical training. For data collection, a system called “Rosa App” was developed. The variables used to build the App were sociodemographic data, lifestyle habits, anamnesis, information about previous exams, and information about the physical breast examination. For the follow-up of altered cases identified by the CHW, a web system was developed. The sample size calculation was defined to detect the reduction of severe cases and mortality (by 10% and 20%, respectively). For this, 80% of sample power was adopted, with a 5% Type I error, after adjusting for intracluster correlation and sample effect (0.032 and 1.892, respectively). The trial was approved by the Research Ethics Committee (CAAE 56916522.8.0000.5078) and ReBEC (RBR-39vm2nd). **Results:** For the first Participating Center (municipality of Itaberaí – Goiás), a population of 1,894 women was estimated in each group (total of 3,788). The study was activated in December 2022, and until February 29, 2024, 3,101 women were randomized, with 1,607 in the CG and 1,494 in the IG. Of these, 366 showed alterations identified in the PBE performed by the CHW, and eight received a diagnosis of breast cancer. **Conclusion:** The trial could help establish new public policy strategies for breast cancer screening.

Support: Avon Institute and Libbs Pharmaceuticals.

Keywords: clinical protocols; breast cancer; community health workers.

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Machine-learning model to predict resistance to neoadjuvant chemotherapy in breast cancer

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Objective: The aim of this study was to use a machine learning algorithm to identify biomarkers of resistance to neoadjuvant chemotherapy (NACT) in breast cancer (BC). **Methodology:** We evaluated microarray gene expression data of BC samples before NACT from public datasets of the Gene Expression Omnibus database. We performed differential expression analyses comparing patients who presented residual disease (RD) vs pathological complete response (pCR) to NACT in each dataset and employed a machine learning algorithm to classify genes involved in NACT resistance. Differentially expressed genes with an adjusted p-value less than 0.01 and a logFC greater than 1 or less than -1, identified in more than one analysis, were selected as potentially relevant to tumor resistance. We implemented the XGBoost algorithm, a machine-learning technique based on trees, and used the SHAP method to interpret the prediction results of the machine-learning model. **Results:** The selected datasets were GSE25066, GSE20271, and GSE20194, containing 472, 173, and 267 samples. These datasets present heterogeneous data, with different subtypes of BC and treatments used in the NACT (FACT×FECT and paclitaxel×docetaxel). Our differential expression analysis identified 39 genes for the dataset GSE25066, 28 for GSE20271, and 43 for GSE20194. The XGBoost algorithm achieved an average accuracy of 95% in classifying samples into pCR and RD. Through the SHAP, we identified the genes that most contributed to the prediction of resistance to NACT in the algorithm and found 229 genes in GSE25066, 84 in GSE20271, and 154 in GSE20194. Despite the high heterogeneity of the datasets and methodologies, we identified five genes that were common to both methods. **Conclusion:** These findings contribute to a better understanding of the mechanisms involved in intrinsic tumor resistance to NACT, highlighting the capacity of the XGBoost algorithm in predicting BC resistance, and allowing the development of personalized therapeutic strategies.

Keywords: breast neoplasms; neoadjuvant chemotherapy; drug resistance; gene expression; algorithms.

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Randomized clinical trial: breast cancer screening based on physical examination performed by community health workers

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Objective: The aim of this study was to evaluate partial results after 1 year of data collection from breast cancer screening conducted by community health workers (CHW), according to the ITABERAÍ Project. **Methodology:** A multicenter randomized clinical trial phase III, where the unit of observation was data from women aged 40 years or older, without a diagnosis of breast cancer, who consented to participate in the study and were randomized by CHW and registered in the Rosa Application. Randomization considered the National Health Strategies (NHS) of each CHW, which were randomly allocated into control group and intervention group. The Intervention was considered as the physical breast examination (PBE) performed by the CHW. **Results:** After 1 year of data collection, 3101 women were randomized, with 1607 (51.8%) in the control group and 1,494 (48.2%) in the intervention group. The mean age was 58.1 years, with 57.8 years \pm 11.1 in the control group and 58.5 years \pm 11.1 in the intervention group ($p > 0.05$). Of the total participants, 2,989 reported on mammography (MMG) status, of which 1,550 were in the control group and 1,439 in the intervention group. Among women in the control group, only 615 (38.3%) had undergone MMG in the last 2 years, while in the intervention group, it was 647 (43.3%). CHW identified 315 (10.2%) abnormal cases, and after screening in NHS 71 (22.5%) women received specialist medical care. After further examinations, 13 (18.3%) were referred for biopsy, with diagnostic confirmation in 9 women (69.2%), 6 (66.7%) from the intervention group and 3 (33.3%) from the control group. Of the confirmed cancers, three underwent conservative surgeries (quadrantectomy), one mastectomy, four were referred for neoadjuvant chemotherapy, and one is pending treatment decision. **Conclusion:** Initially, the results suggest that properly trained CHW are an important strategy that can contribute to improving breast cancer screening in Brazil.

Support: Avon Institute and Libbs Pharmaceuticals.

Keywords: screening; breast cancer; community health workers.

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Vacuum-assisted excision: a single-step approach to the diagnosis and treatment of early breast cancers – initial report

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Objective: The aim of this study was to describe the initial experience applying vacuum-assisted excision (VAE) associated with cavity margins sampling shaving (CMSH) to breast lesions (BL), smaller than 15 mm and suspected of malignancy, as a single-step approach in diagnosing and treating early breast cancers (EBC). **Methodology:** An open interventional study was conducted recruiting patients with Category 4 and 5 ACR BI-RADS™ BL, smaller than 15 mm, candidates for VAE. Patients with diagnosed multifocal/multicentric breast cancer (BC) were excluded. The VAE was performed, complete BL excision was achieved, and CMSH was obtained by 12 entire cavity circumference core samples (CS). If BC was confirmed, patients were submitted to standard surgery (SS) and adjuvant therapy. Data on demographic, imaging, pathology, VAE-CMSH, and surgery were recorded. BREAST-Q core biopsy score (CBS) was applied to analyze patient satisfaction. The SPSS® 20.0 software was used for statistical analyses. **Results:** From 01/12/2023 to 06/03/2024, 12 patients were assigned with a mean age of 53.92 years and a mean imaging tumor size (iT) of 10.7 mm (7–15). Mean 40 CS weighting 18.3 g were retrieved in 21 min VAE-CMSH time. Two patients had skin laceration and one diffuse breast bruising, despite high satisfaction, with a mean BreastQ-CBS of 15.1/16. Three lesions were invasive cancers (IC), four lesions of the indeterminate potential of malignancy (B3 lesions), three fibroadenomas, and two fibrocystic diseases. The IC were BI-RADS 4C masses, 12 mm mean iT, 6.3 mm (6–7) mean pathological size, two lobular and one ductal, all luminal A like in immunohistochemistry, completely resected by ultrasound-guided VAE-CMSH, submitted to lumpectomy with negative sentinel node biopsy (pN0), representing true negative cases (neither residual tumor on CMSH nor on SS). **Conclusion:** VAE-CMSH is a feasible, fast, well-tolerated outpatient procedure with high patient satisfaction. It can accurately diagnose and completely resect suspected BL smaller than 15 mm in a single-step approach, including B3 lesions and EBC, presenting promising results and no false negatives in the first three BC patients.

Keywords: early breast cancer; vacuum-assisted biopsy; minimally invasive breast cancer treatment.

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External prostheses after mastectomy: adhesion, manufacture, and selection of a low-cost functional model to be performed in developing countries

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Objective: The objective of this study was to create a low-cost external breast prosthesis (BEP) and evaluate factors associated with non-adherence to BEP use. **Methodology:** This study was approved by the Brazilian Ethics Committee CAAE 68799223.2.0000.5105. An observational, prospective transversal study was carried out in a Tertiary Public Oncological Hospital, in previously mastectomized patients, without breast reconstruction, aiming to evaluate factors associated with non-adherence to BEP. In addition to this fact, we create a low-cost PME, lightweight and with low purchase cost. The patients were presented with five prosthesis models, one commercial, three manufactured models, and the new model. They had different weights, covering, and filling materials. The patients chose two prostheses to justify it. In assessing adherence or non-adherence to the use of the prosthesis, the chi-square test and logistic regression were used. **Results:** The silicone prosthesis cost was US\$40, with a weight ranging from 123 to 504 g, and the new BEP cost was US\$4, with a weight ranging from 19 to 48 g. When asked to select two prosthesis options, it was observed that the first choice was the silicone prosthesis (33.9%), and the second option was the prosthesis made in the study (70.5%). Of the 72 patients evaluated, 45.8% (33) did not use BEP. Excluding patients with a follow-up period of less than 1 month (n=9), failure to use BEP was associated with a lack of knowledge (n=9), and poor adaptation (n=4), with the remainder having no reason (n=8). The following factors of time were evaluated since surgery: age, education, prosthesis size, clinical stage, and BMI; age and BMI were associated with not using BEP. The factors that patients consider most important in a prosthesis were weight (41.7%), shape (29.2%), comfort (15.3%), and ease of cleaning (12.5%). **Conclusion:** There are multiple barriers related to non-adherence to BEP, making it necessary to improve patient knowledge and adherence. The new BEP is lightweight with low-cost production, facilitating its production and patient adherence in low-income countries.

Keywords: breast neoplasms; external breast prosthesis; quality of life.

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Is it possible to omit axillary surgery after neoadjuvant therapy for breast cancer? Preliminary outcomes in patients who underwent neoadjuvant treatment in the ongoing venus trial – a randomized controlled clinical trial

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Objective: Axillary surgery omission after neoadjuvant therapy (NAT) in breast cancer (BC) has not yet been studied. VENUS (ClinicalTrials.gov NCT05315154, ReBEC RBR-8g6jbf, Ethics approved: CAAE: 06805118.2.0000.5404) is an ongoing trial that evaluates the omission of sentinel lymph node biopsy (SLNB) in early BC and allows the inclusion of patients submitted to NAT. The aim of this study was to present preliminary axillary outcomes in patients submitted to NAT and compare them with patients referred to upfront surgery in the VENUS trial. **Methodology:** This is a multicenter, prospective, non-inferiority, open, randomized controlled clinical trial that includes women with stage T1/T2, N0 (clinical/ultrasound) M0 BC, randomized to SLNB or no axillary surgery. The initial treatment could be NAT or up-front surgery, based on local protocol at each study center. After NAT, axillary ultrasound should also be negative before randomization. **Results:** Up to 4.5 years after the VENUS trial started, 322 women were randomized. NAT was performed in 8% (n=26), of which 12 were randomized to SLNB (neoSLNB group) and 14 to no axillary surgery. Breast overall pCR rate was 39.1%. In the neoSLNB group, 41.7% had triple negative, 8.3% HER2, 25% luminal HER, and 25% luminal vs. 1.3%, 1.9%, 9.5%, and 87.4%, respectively, in the upfront surgery group ($p<0.001$). The mean tumor size was 2.3 cm in the neoSLNB vs 1.5 cm upfront surgery group ($p<0.001$). In the neoSLNB group, there were 8.3% of axillary positivity (1/12) and 20.9% (28/134) in the upfront surgery group ($p<0.05$). So far, there has been no axillary recurrence (mean follow-up of 20 months). **Conclusion:** Patients submitted to NAT had larger and more aggressive tumors than patients in the upfront surgery. Axillary positivity after NAT was lower than in patients referred to upfront surgery. Until now, there have been no axillary recurrences in the VENUS trial.

Keywords: node-negative breast cancer; sentinel lymph node dissection; axillary staging; axillary surgery omission.

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Disparity in access to anti-HER2 therapies in neoadjuvant chemotherapy: a prognostic analysis based on real world data between public and private systems in Brazil

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Objective: The aim of this study was to evaluate the impact of disparities in the use of trastuzumab in the neoadjuvant chemotherapy (NAC) within the Brazilian public health system on pathological complete response (pCR), overall survival (OS), and disease-free survival (DFS). **Methodology:** A retrospective, multicenter cohort study was conducted with female patients older than 18 years, diagnosed with non-metastatic, HER2 positive breast cancer, who underwent NAC. The study took place at the Hospital Pérola Byington (PEROLA), serving the Unified Health System, and the Hospital do Servidor Público Estadual (HSPE), catering to public employees of the State of São Paulo, thus considered a private facility. pCR was defined as the absence of any residual invasive or *in situ* tumors in the breast and axillary nodes. Being an exploratory study based on real-world data (RWD), no confirmatory hypotheses were formulated; hence, there was no need for adjustments for multiple comparisons. OS and DFS were estimated using the Kaplan-Meier method over a period of 5 years. **Results:** Between 2011 and 2020, 381 patients at PEROLA and 78 patients at HSPE were treated with NAC for HER2-positive BC. Access to Trastuzumab was higher at HSPE than at PEROLA (83.4% vs. 60.0%, $p < 0.001$). The rate of pCR in patients who used Trastuzumab was significantly higher in both institutions, PEROLA (54.3% vs. 26.4%, $p < 0.0001$) and at HSPE (52.7% vs. 26.4%, $p < 0.0001$). The OS of HER2+ patients with pCR at HSPE was higher than at PEROLA with a significant difference (80% vs. 61% log-rank $p < 0.0001$), and the DFS was also superior at HSPE with a significant difference (89% vs. 67% with log-rank $p < 0.0001$). **Conclusion:** We can demonstrate, with RWD, that the disparity in access to trastuzumab in NAC between the public and private healthcare systems is negatively impacting clinical outcomes and patient survival, highlighting the need for measures to ensure equity in cancer treatment. Addressing this issue is crucial for improving oncological care and the quality of life for patients.

Keywords: breast cancer; neoadjuvant chemotherapy; disparity; equity; trastuzumab; overall survival; disease-free survival.

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The diffusion sequence by magnetic resonance in the diagnosis of breast cancer: an analysis of accuracy

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Objective: The objective of this study was to evaluate the accuracy of diffusion-weighted magnetic resonance imaging in diagnosing breast cancer compared with breast biopsy. **Methodology:** Diagnostic accuracy study of qualitative cross-sectional analysis to perform breast magnetic resonance spectroscopy carried out on 215 women over 18 years of age who agreed to participate in the study. Data were verified using normalized QQ plot analysis and standardized residual histogram. The distribution of the patients' profile according to the biopsy result was tested using the chi-square test and Student's t-test. To evaluate the sensitivity and specificity of DWI (Diffusion), ROC curve analysis was performed using the biopsy result as the gold standard. Data were analyzed in SPSS, version 26.0. The significance level adopted was 5% ($p < 0.05$).

Results: Regarding restriction to the diffusion sequence (DWI), it was observed that 78.1% had restriction and 21.9% were without restriction, confirmed in the respective ADC maps at the values of b50, b400, and b800. After breast biopsies, it was observed that 74.4% of the results were positive for malignancy and 25.6% for benignity. The data revealed that 81.8% of biopsy results were benign for BI-RADS[®] 3 and 41.3% malignant for BI-RADS[®] 4, with 19.4% malignant for BI-RADS[®] 4A. Compared with biopsies, the result for breast lumps was significant, totaling 68.8% for malignancy. However, for cysts, the 30.9% benign result in biopsy results was significant. It is important to highlight that 94.4% of malignant results confirmed by biopsies showed diffusion restriction in exams confirmed with their respective ADC maps. To evaluate the accuracy of the diffusion-weighted sequence (DWI), ROC curve analysis was performed in comparison with breast biopsy. In the case of diffusion restriction (DWI), sensitivity was 0.94 and specificity was 0.69. **Conclusion:** The significance indicated in the data infers that the model was efficient in predicting breast diagnosis.

Keywords: accuracy; breast cancer; diffusion-weighted imaging.

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First interim analysis of radiotherapy data after 4.5 years of sentinel lymph node biopsy versus no axillary surgery in early breast cancer clinically and ultrasonographically node-negative: a prospective randomized controlled trial – venus trial

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Objective: VENUS (ClinicalTrials.gov – NCT05315154 and ReBEC – RBR-8g6jbf; ethics approval: CAAE:06805118.2.0000.5404) is an ongoing trial that evaluates omission of sentinel lymph node biopsy (SLNB) in early breast cancer clinically and ultrasonographically node negative. This is a partial report on the first interim radiotherapy data collected up to 4.5 years after the VENUS trial started. The objective was to evaluate whether radiotherapy is uniform between VENUS groups.

Methodology: This is a prospective, multi-center, non-inferiority randomized controlled clinical trial including T1-2 N0 (clinical/ultrasound) M0 breast cancer patients randomized into SLNB or no axillary surgery. Adjuvant radiotherapy planning was based on local protocols adopted by each study center. In the no-surgery group, axilla status was considered N0 during planning. Radiotherapy features analyzed were: planning, number and location of fields, whole-breast/boost dose, fractioning, and dose distribution in axillary levels I-III. **Results:** Until February 2024, 322 women were randomized. Radiotherapy was performed in 221 (SLNB n=115 and no-surgery n=106). 2D and 3D IMRT and 3D conformational planning were applied for 7, 26, and 173 patients, respectively, with no imbalance across study groups (p=0.23). The mean whole-breast dose was 424742.cGy in SLNB and 4269.95cGy in no-surgery (p=0.67). The mean percentage of total prescribed breast doses distribution in axillary was Level I 5.73% SLNB vs. 2.16% no-surgery (p=0.12), Level II 0.53% SLNB vs 0.07% no-surgery (p=0.86), and Level III 0.96% SLNB vs. 0.00% no-surgery (p=0.06). Radiotherapy fields (axilla, supraclavicular fossa, breast, and internal mammary) and boost are described and were all evenly balanced across study groups.

Conclusion: Breast radiotherapy has achieved an unintentional low radiation dose in the axilla of some patients, mainly at Level I. However, there was no difference between VENUS trial groups in radiotherapy parameters. So far, with more than 40% of the sample size achieved, there has been no violation of radiotherapy procedure protocol in the VENUS trial.

Keywords: breast neoplasms; breast cancer; sentinel lymph node biopsy; breast cancer treatment; axillary surgery; ultrasound; radiotherapy.

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Patient-reported aesthetic outcomes in oncoplastic breast surgery compared with conventional breast-conserving surgery: a systematic review and meta-analysis

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Objective: We aimed to compare the aesthetic and surgical satisfaction of oncoplastic breast surgery (OBS) to conventional breast-conserving surgery (CBCS). **Methodology:** This meta-analysis (PROSPERO: CRD42024521223) followed PRISMA and PICO guidelines. PubMed, Embase, Scopus, Web of Science, and Cochrane databases were searched for randomized trials and non-randomized studies comparing OBS to CBCS for female breast cancer patients and reporting outcomes of patient-reported aesthetic results, overall satisfaction, complications, and re-excision. A random-effects model was performed in the R software. Heterogeneity was assessed using I^2 statistics. Continuous and dichotomous data were presented as standardized mean difference (SMD) and odds ratio (OR), respectively. Confidence interval (CI) was defined at 95%. **Results:** A total of 36 non-randomized studies were included, along with 9,453 patients, with 3,578 undergoing OBS. OBS yielded better patient-reported aesthetic outcomes compared with CBCS, notably in satisfaction with breast reconstruction (SMD 0.68; 95%CI 0.126–1.227; $p=0.016$; $I^2=89\%$) and psychosocial well-being (SMD 0.23; 95%CI 0.003–0.459; $p=0.047$; $I^2=49\%$). Physical and sexual well-being showed no significant difference. Overall satisfaction favored OBS (OR 3.08; 95%CI 1.58–6.01; $p<0.001$; $I^2=82\%$), despite higher postoperative complications (OR 1.27; 95%CI 1.003–1.589; $p=0.047$; $I^2=9\%$). There was no significant difference in infections, seromas, and hematomas; however, OBS showed a higher risk of skin/nipple-areola complex necrosis (OR 2.56; 95%CI 1.28–5.11; $p=0.008$; $I^2=0\%$). Regarding the need for a second surgery, OBS had fewer re-excisions (OR 0.46; 95%CI 0.34–0.62; $p<0.0001$; $I^2=45\%$). **Conclusion:** OBS shows better aesthetic and satisfaction outcomes than CBCS, with reduced re-excisions. Nonetheless, postoperative complications require careful evaluation.

Keywords: breast neoplasms; breast-conserving surgery; breast reconstruction; patient satisfaction.

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Breast conservation therapy or mastectomy and breast reconstruction in the treatment of locally advanced and/or multifocal/multicentric breast cancer? Systematic review and meta-analysis

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Objective: The purpose of this systematic review and meta-analysis was to measure if breast conservation therapy (BCT) was feasible for female patients with multifocal (MF), multicentric (MC), and/or ≥ 5 cm breast cancer (BC) and compare the results of treatment with those patients who underwent mastectomy (MT). **Methodology:** This systematic review and meta-analysis were recorded at Prospero CRD42022362765 and conducted based on the Prisma checklist. PubMed, Web of Science, and Virtual Health Library databases were searched in April 2023. **Results:** A total of eight retrospective cohort studies were included for evaluation, comprising a total of 2,151 women, of which 838 underwent BCT and 1,313 underwent MT. The meta-analysis revealed that in the treatment of MF/MC and/or ≥ 5 cm BC, based on the random-effects model, there was no significant difference in local relapse (LR) (OR=0.67, 95%CI 0.02–1.37, $p=0.61$, $I^2=7.5\%$), regional recurrence (RR) (OR= -0.23, 95%CI -1.97 to 1.51, $p=0.79$, $I^2=0$), metastasis (OR= -0.08, 95%CI -0.76 to 0.60, $p=0.813$, $I^2=0$), and mortality (OR= -0.02, 95%CI -1.89 to 1.85, $p=0.98$, $I^2=42\%$) between the BCT and MT groups. The cumulative incidence of LR was 3.2% (27/838) for BCT and 1.1% (14/1313) for MT. The incidence of RR was 1% in both the BCT and MT groups. The incidence of metastasis was 6.6% in the BCT (21/316) group and 7.8% (18/229) in the MT group, and the mortality was 4.1% (9/222) in the BCT group, with a mean follow-up of 65.1 months and 2.5% (3/119) in the MT group with a mean follow-up of 51 months. **Conclusion:** Our results demonstrated that BCT does not result in inferior local control or worse survival outcomes for patients with MF/MC and/or ≥ 5 cm BC and that BCT can be offered when feasible clinically for these patients.

Keywords: breast neoplasms; mastectomy; mastectomy; segmental; systematic review; meta-analysis.

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Dose-dense versus 3-weekly ac during neoadjuvant chemoimmunotherapy for early-stage triple-negative breast cancer: GBECAM 0123 – the neo-real study

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Objective: This analysis aims to evaluate the effectiveness and safety of dose-dense AC (ddAC) compared with every 3 weeks (q3w) AC during neoadjuvant pembrolizumab plus chemotherapy (P+CT) for triple-negative breast cancer (TNBC).

Methodology: The Neo-Real study is a collaborative real-world data effort evaluating patients treated with neoadjuvant P+CT since July 2020 in 10 cancer centers. Effectiveness endpoints were pathologic complete response (pCR) and residual cancer burden (RCB) 0–1. Factors associated with pCR and RCB 0–1 were also explored. Safety endpoints included drug discontinuation, grade ≥ 3 adverse events (AEs), and antibiotics use. **Results:** Among 333 patients included to date, 311 finished the neoadjuvant therapy phase (safety cohort) and 279 underwent surgery with available pathology reports (effectiveness cohort). ddAC was used in 58.2% and q3w AC in 41.8% of the cases. Most patients (69.1%) had stage II TNBC. A pCR was observed in 65.4% with ddAC and 58.7% with q3w AC ($p=0.260$), while RCB 0–1 occurred in 82.4% and 73.5%, respectively ($p=0.115$). Patients with stage III disease had a numerically higher pCR with ddAC (59% vs. 40%, $p=0.155$), while pCR rates were similar regardless of AC schedule in stage II disease (66.6% vs. 64.5%; $p=0.760$). Ki67 $\geq 50\%$, tumor grade 3, and TILs $\geq 30\%$ were identified as predictors of higher pCR rates, while clinical stage III and receiving < 6 cycles of neoadjuvant pembrolizumab were associated with a decreased pCR. While no significant disparities in drug discontinuation or antibiotics use were noted, ddAC showed a trend toward higher rates of grade ≥ 3 AE (40.5% vs. 30.7%, $p=0.092$), particularly febrile neutropenia (16% vs. 9.2%). **Conclusion:** The Neo-Real study found no statistically significant differences in effectiveness or safety between ddAC and q3w AC during neoadjuvant P+CT. However, the numerically higher pCR rates with ddAC in patients with stage III disease deserve further investigation.

Keywords: triple-negative breast neoplasms; immunotherapy; anthracyclines; neoadjuvant therapy.

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Distinct expression of miRNAs and its association with survival in triple-negative breast cancer and non-triple-negative breast cancer breast tumor subtypes from a cohort of patients from south of Brazil

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Objective: The main objective of this study was to determine the expression levels of miR-26a-5p, miR-126-3p, and 182-5p and their association with clinical parameters in patients with the triple-negative breast cancer (TNBC) and non-TNBC subtypes in a cohort of patients from South of Brazil. **Methodology:** The miRNAs were selected based on their common regulatory interactions of gene targets involved in the cell adherence and junction and critical associated cancer signaling pathways. Primary tumors of TNBC (n=30) and non-TNBC (n=52) patients were obtained before treatment from Erasto Gaertner Hospital, Curitiba, PR. The clinical data included: age, tumor size and TNM stage, lymph node and distant metastasis, comorbidity (ies), and survival status. The tumor samples and adjacent non-tumor tissue samples were subjected to tissue microdissection, RNA isolation, and RT-qPCR. This was approved by CONEP (894,864). **Results:** The three miRNAs showed significantly different expressions between the TNBC and adjacent non-tumor tissues ($p < 0.001$). In the non-TNBC group, only miR-126-3p showed a significant difference ($p < 0.01$). Expression analysis revealed significantly lower expression of miR-26a-5p ($p < 0.01$) and higher expression of miR-126-3p and miR-182-5p ($p < 0.001$ and $p < 0.01$, respectively) in TNBC compared with non-TNBC tissues. No significant differences were observed in clinicopathological data between the groups or in their association with miRNA expression. However, higher expressions of the miR-26a-5p and miR-126-3p were significantly associated with patient mortality in the TNBC group ($p < 0.05$ and $p < 0.01$, respectively). **Conclusion:** Our findings demonstrated a distinct pattern of expression of miR-26a-5p, miR-126-3p, and 182-5p between TNBC and non-TNBC breast cancer subtypes and revealed a significant association of these miRNAs on the survival of the TNBC patients. These observations underscore the potential of these miRNAs as valuable biomarkers for subtype classification and their impact on TNBC survival. By delineating specific molecular signatures associated with each subtype, our study contributes to the understanding of the underlying biological mechanisms driving TNBC and non-TNBC tumors.

Keywords: triple-negative breast cancer, TNBC; non-triple-negative breast cancer, non-TNBC; miRNAs; miR-26a-5p; miR-126-3p; miR-182-5p.

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Enrichment of intestinal bifidobacterium genus is associated with residual disease among patients with early-stage HER2+ breast cancer (BC) following neoadjuvant chemotherapy (NACT)

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Objective: The objective of this study was to characterize the gut microbiome (GM) of patients with early-stage breast cancer (eBC) who underwent NACT and to evaluate its association with clinicopathological factors and outcomes.

Methodology: This was a prospective study conducted at two Brazilian Institutions. Fecal samples were collected at the baseline and prior to surgery. The GM was analyzed by 16S rRNA amplicon sequencing to characterize the alpha (InvSimpson indexes) and beta (weighted UniFrac distance) diversity, as well as the taxonomic composition. **Results:** Among the 55 female patients included, the median age was 49 years, 56% had stage III disease, and 23% had used antibiotics in the prior 2 months before starting NACT. Regarding the immunohistochemical profile, 34.5% (n=19) of patients had estrogen receptor-positive (ER+)/HER2-negative BC, 20% (n=11) had HER2-positive disease, and 45.5% (n=25) were triple-negative. All patients with ER+ had KI 67 >14%. There was no significant difference in alpha or beta-diversity between patients with or without pathological complete response, nor within clinical pathologic factors. The taxonomic profiling of fecal samples revealed that Lachnospiraceae at family and Blautia at genus levels were the most abundant taxon, and longitudinal samples collected during NACT showed no significant changes in GM composition. We found an enrichment for Clostridia sp. among patients who did not use antibiotics ($p < 0.05$, $pFDR \leq 0.25$). Notably, we found a higher abundance of Bifidobacterium genus ($p < 0.05$, $pFDR \leq 0.25$) in baseline samples from patients with HER2+ tumors who presented residual disease following NACT. **Conclusion:** This pilot study demonstrates the feasibility of GM sequencing in patients with eBC. We identified a significant association between the relative abundance of intestinal Bifidobacterium genus response to NACT among patients with HER2+ tumors. If validated, these results can help tailor the preoperative systemic treatment of patients with HER2+ eBC.

Keywords: breast cancer; neoadjuvant chemotherapy; gut microbiota.

SIMULTANEOUS ROOM

<https://doi.org/10.29289/259453942024V34S1017>

Immediate postoperative complications associated with sentinel lymph node biopsy in early breast cancer in the context of the sentinel lymph node biopsy versus no axillary surgery in early breast cancer clinically and ultrasonographically node-negative (venus) trial

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Objective: VENUS is an ongoing trial that evaluates the omission of sentinel lymph node biopsy (SLNB) in early breast cancer clinically and ultrasonographically node negative. Despite SLNB being a low-morbidity procedure compared with axillary dissection, there are complications associated with it that may be underestimated. The aim of this study was to evaluate the first data about immediate and late axillary complications in patients of the VENUS trial. **Methodology:** This is a prospective, multi-center, non-inferiority randomized controlled trial including T1-2 N0 (clinical/ultrasound) M0 breast cancer patients randomized into SLNB or no axillary surgery. Complications were assessed during postoperative follow-up visits and at 6-month intervals. This report focuses on postoperative assessments. The variables included were pain, seroma, paresthesia, arm movement restriction, lymphedema, patent blue tattooing, and others, as well as whether treatments/interventions were required. This study was registered in ClinicalTrials.gov (NCT05315154) and ReBEC (RBR-8g6jbf) and approved by the ethics committee (CAAE:06805118.2.0000.5404). **Results:** Until now, 322 patients were randomized to SLNB (n=170) or no-surgery (n=152). The mean follow-up time so far is 20.6 months (range 3.3–48.6 months). The overall axillary complication rate was 53.5% (SLNB) vs. 5.3% (non-SLNB) ($p < 0.001$). In the immediate postoperative assessment, blue dye tattooing was the most frequent (33.5%) complication, followed by pain (22.4%), paresthesia (8.2%), seroma (6.5%), dehiscence and infection (2.4%), and range of motion restriction (1.8%). Complications were not associated with the number of sentinel nodes resected (regression coef = -0.06, $p = 0.534$). Interventions to treat at least one of the complications were required for 36.9% of the patients, with analgesics being the most frequent (50%) intervention. **Conclusion:** SLNB was associated with a higher rate of complications, which may be overlooked and lead to treatment morbidity, and should not be disregarded.

Keywords: breast cancer; sentinel lymph node biopsy; breast cancer treatment; axillary surgery; complications.

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Breast cancer and local therapy: breast conservation and oncoplastic surgery are associated with improved quality of life

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Objective: Breast cancer is one of the leading causes of cancer in women worldwide. Local treatment can be distressful to patients. We aimed to evaluate how different types of local treatment impact the quality of life of breast cancer patients.

Methodology: Breast-Q Satisfaction with Breasts scores were collected before surgery and 1 year post-operatively after a first breast oncologic surgery. Linear regression was used to estimate the impact of breast conservation, use of oncoplastic surgery, types of breast reconstruction, and use of radiation therapy on Breast-Q scores. All analyses were adjusted by age, education, marital status, body mass index, T staging, N staging, tumor subtype, presence of bilateral cancer, radiation therapy, axillary staging, presence of complications, and pre-operative Breast-Q scores. **Results:** From December 2017 to December 2021, 349 patients answered both pre- and 1-year post-operative Breast-Q scores. In total, 237 (68%) patients received breast-conserving surgeries, and 112 (32%) received mastectomies. All mastectomy patients received breast reconstruction, and 176 (74% of breast-conserving surgeries) received concomitant oncoplastic surgery. After multivariable analysis, mastectomy was associated with lower scores compared with breast-conserving surgery (-21.3; 95%CI -36.2 to -6.4, p=0.005), oncoplastic surgery was associated with higher scores (9.2; 95%CI 0.8–17.6, p=0.032). There was a tendency of higher scores with the use of flaps in breast reconstruction, and a tendency of lower scores with the use of radiation therapy, but not significant. Interestingly, bilateral cancers were associated with higher scores (25.8; 95%CI 3.6–47.9, p=0.023). Of note, there were six bilateral cancers, five treated with bilateral mastectomies. **Conclusion:** Breast-conserving surgery is associated with better quality of life compared with mastectomy. Oncoplastic surgery is associated with even better quality of life. Patients should be counseled whenever multiple options of surgery are possible, and efforts should be made to increase the availability of trained surgeons in oncoplastic techniques.

Keywords: breast neoplasms; surgical oncology; quality of life; psychological well-being.

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CK19 expression and prognosis in women with breast cancer

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Objective: The objective of this study was to evaluate the association between CK19 expression and clinicopathological characteristics in cases of women with breast cancer. **Methodology:** This is a cross-sectional study involving women with breast cancer whose biopsies were analyzed by immunohistochemistry. The selection of participants was done in the years 2010 and 2015, based on a search in the records of anatomopathological examinations. The representative images were captured by the Image Prolife program. Selection criteria for representative areas were based on image sharpness and on the areas of greater intensity of cellular immunoreaction (hot-spot areas). The association analyses between CK19 expression and clinicopathological characteristics were performed using the chi-square test. The research was approved by the Research Ethics Committees of the Federal University of Goiás, and HAJ, with opinion number: 3983832 and 4019893. **Results:** A total of 121 cases of women diagnosed with breast cancer were included. In summary, women under the age of 50 years represented 52.9% of the total cases, 57.9% were classified as luminal, histological grade 1 and 2 tumors represented 53.8% of cases, and 51.2% were classified as stage I and II e74. Notably, 4% of cases had tumors <5 cm. The mean expression of CK19 was 70.6%, and the median was 79.3%. Median values of marked cells were used to define cut-off points for low and high expression. Regarding CK19 expression and clinicopathological characteristics, a significant association was observed between the median CK19 expression and the luminal phenotype ($p=0.001$, OR: 2.86, 95%CI 1.24–6.60), age ≥ 50 years ($p=0.002$, OR: 2.34, 95%CI 1.09–4.99), tumor size <5 cm ($p=0.03$, OR: 2.47, 95%CI 1.01–6.04), and a borderline association with absence of distant metastasis ($p=0.072$, 2.08 [0.930–4.64]). The other variables such as histological grade, lymph node metastasis, staging, recurrence, and death from cancer did not show associations with the expression of CK19. **Conclusion:** CK19 expression is associated with some clinicopathological characteristics of better prognosis in women with breast cancer.

Keywords: breast cancer; prognosis; CK19; immunohistochemistry.

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Forequarter amputation in patients with breast cancer: a systematic literature review

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Objective: The objective of this study was to carry out a systematic review of the literature, evaluating the impact of forequarter amputation in locoregional control and survival of patients with breast cancer. **Methodology:** Based on resolution 466/12, the Research Ethics Committee evaluation was not necessary. Systematic literature review using eight databases. The PICOS and PRISMA methodologies were used. Two evaluators selected the articles, and the data were summarized in a standardized form. **Results:** Of 1326 articles initially selected on December 31, 2022, 55 articles served as the basis for the review, and 104 cases were observed. The indication 78 (75.0%) were primary tumors and 7 (6.7%) were local recurrences. The main histological type of the primary tumor was invasive ductal carcinoma. The main indication was due to Stewart-Treves syndrome (43.3%), followed by local recurrence of breast cancer (23.1%), radio-induced tumor (14.4%), and locally advanced primary (5.8%). Surgery was considered potentially curative in 50.0%, palliative in 31.7%, and not performed in 2.9%. In patients where the complication rate was reported, it was around 27.3%, the main ones being necrosis, pleural effusion, dehiscence, and infection, with no mortality observed. When evaluating well-being (n=22), all reported improvement in this aspect. In 71 patients, local recurrence was evaluated, being in the order of 32.4%. In 89 patients, it was possible to assess survival. The overall actuarial survival at 24, 36, and 60 months was 37.1%, 31.6%, and 28.0%, respectively. The type of surgery had an impact on survival (p=0.002), 47.2% of patients undergoing curative surgery were alive at 60 months, and 15.3% of patients undergoing palliative surgery were alive at 24 months. **Conclusion:** In breast cancer, forequarter amputation is associated with high morbidity and absence of mortality, allowing a high rate of local control and pain control. When performed on a curative basis, it allows a high survival rate.

Keywords: breast neoplasms, disarticulation, stewart treves syndrome, surgical amputation, forequarter amputation.

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The potential role of cavity margins sampling shaving to predict complete tumor resection by vacuum-assisted excision

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Objective: The objective of this study was to evaluate the cavity margins sampling shaving (CMSH) as a predictor of complete tumor resection (CR) by VAE. **Methodology:** This is a retrospective database analysis of 120 ductal carcinoma *in situ* (DCIS) and invasive cancers (IC) of the breast, smaller than 20 mm (image), submitted to diagnostic VAE-CMSH and standard surgery (SS) from June 2021 to December 2023. VAE definition: more than 12 core samples (CS) with 7G needle or 18 samples with 10G needle. CMSH definition: core sampling the round residual cavity circumference after VAE. CMSH-CS were allocated in an exclusive bottle and sent to the laboratory. Demographic, imaging, pathology, VAE, CMSH, and SS data were collected. CMSH was compared with SS (gold standard) to predict CR. The SPSS® 20.0 software was used for statistical analyses. **Results:** The mean age was 58.5 years; the mean imaging tumor size (iT) was 12.4 mm; masses were 68 (56.7%); the mean VAE-CS was 29.5 weighting 9.3 g; the mean CMSH-CS was 10.9 weighting 6.2 g; the mean final pathological tumor size (pT) is 7.5 mm. IC were 75 (62.5%) and DCIS 45 (37.5%); 46 (38.3%) were CR by VAE-CMSH and 74 (61.7%) were not. CMSH was negative for residual cancer in 52 (43.3%) and positive in 68 (56.7%). CMSH sensitivity (SENS) was 70.7%, specificity (ESP) was 66.7%, positive predictive value (PPV) was 77.9%, negative predictive value (NPV) was 57.7%, and false negative rate (FNR) was 29.3%. The variables significantly related to VAE-CMSH CR were the pathological tumor size in the CMSH ($p=0.014$) and pT ($p=0.023$); to true negative CMSH was pT ($p=0.041$); to false negative CMSH were calcifications ($p=0.030$); IC associated to DCIS ($p<0.001$) and the DCIS tumor size in the SS ($p=0.016$). For pure IC, CMSH SENS was 88.9%, ESP was 83.3%, PPV was 88.9%, NPV was 83.3% and FNR was 11.1%. **Conclusion:** CMSH may be a potential approach to predict CR by VAE. Potential selected criteria for future intention to CR trials comparing VAE-CMSH to SS should be small masses of pure IC without calcifications.

Keywords: breast neoplasms; image-guided biopsies; minimally invasive surgical procedures; vacuum-assisted excision..

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Is axillary evaluation still necessary in ductal carcinoma in situ?

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Objective: The objective was to evaluate the surgical approach in the axilla (SNB or axillary dissection – AD) of patients diagnosed with ductal carcinoma in situ (DCIS) in a single institution and describe the surgical treatment (mastectomy or breast conservative surgery – BCS). **Methodology:** This was a retrospective analysis of DCIS in a reference center from January 2011 to December 2019. The patients were split into three age groups: under 40, 40–49, and 50 years or older and we analyzed the type of breast and axillary surgery, as the method of diagnostic and pathologic characteristics of that lesion after surgery. **Results:** Our sample included 494 patients who underwent core biopsy or vacuum-guided biopsy guided by mammography or ultrasound and were diagnosed with DCIS and underwent surgical treatment. DCIS was diagnosed through mammographic alterations in 61.5% of all cases and nuclear grade 2 was the most common (48.3%). Comedonecrosis was present in 77.9% of our specimens. The BCS was made in 72.9% of the cases, with the axillary approach being performed in 34.7%. When a mastectomy was made, 92.5% were submitted to the axillary approach, showing a strong correlation between the type of surgery and axillary approach ($p < 0.001$). Patients younger than 40 years were more likely to undergo an axillary evaluation regardless of the type of surgery ($p = 0.015$). In only 3.2% of cases (16 in 494), we had an upstage to invasive carcinoma and none of them had a lymph node involvement. **Conclusion:** Our results showing no axillary involvement should be taken into account when deciding to evaluate the axilla in DCIS. The cost, mobility, and complications of the surgical treatment in these patients can help us stop evaluating the axilla.

Keywords: ductal carcinoma *in situ*; axillary approach; sentinel node biopsy; axillary dissection.

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Factors influencing the engagement of community health workers in breast cancer screening: Itaberaí Project

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Objective: The objective of this study was to evaluate the factors influencing the engagement of community health agents (CHW) in home visits for breast cancer screening, according to the actions of the Itaberaí Project. **Methodology:** This is a clinical trial, controlled, randomized, multicenter, phase III, where the observation unit was the CHW in their National Health Strategies (NHS). With randomization, CHW were randomly allocated into control group (CG) and intervention group (IG), where the intervention is the physical breast examination (PBE) performed by properly trained CHAs. The evaluation was conducted using a group technique, where CHW were previously encouraged to report challenges and facilitators in participating in the Itaberaí Project. Data were categorized by content approximation, evaluated, and compared between the groups. **Results:** Out of the 74 CHW active in the Project, 72 (91.1%) participated in this research, with 33 (45.8%) in the CG and 39 (54.2%) in the IG. In the CG, the most prevalent challenge was women's acceptance to participate in the Project, as reported by 33 CHW (100.0%), where the reasons were fears and taboos, delays in undergoing exams, and having health insurance, with 14 (42.4%), 13 (39.4%), and 6 (18.2%), respectively. The most common facilitators for executing the Project reported by CHW were helping others and saving lives 25 (75.8%), recognition and appreciation of CHW 23 (69.7%), and ongoing training 22 (66.7%). In the IG, the most prevalent challenge was women's resistance to receiving the PBE, while the least prevalent was CHW insecurity in performing the PBE. Among the facilitators, the most prevalent was prompt service 28 (70.0%). **Conclusion:** The factor that most influences the engagement of CHAs in carrying out the Itaberaí Project is "saving lives" or "helping others." However, they still encounter resistance from women due to fears and taboos regarding breast cancer.

Support: Avon Institute and Libbs Pharmaceuticals.

Keywords: community health workers; work engagement; screening; breast cancer.

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Assessment of a continuing education program for community health workers for breast cancer screening: Itaberaí Project

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Objective: The objective of this study was to evaluate a theoretical-practical continuing training program for community health workers (CHW) in breast cancer screening, according to the actions of the Itaberaí Project. **Methodology:** The CHW training program is developed according to the following stages: face-to-face theoretical-practical, distance learning (DL), and ongoing on-site training. This program corroborates with the phases of the Itaberaí Project, which is a clinical trial, controlled, randomized, multicenter, phase III, where the unit of observation was the CHW in their National Health Strategies (NHS), randomly allocated to control group (CG) and intervention group (IG). The theoretical-practical training and DL course were evaluated using a questionnaire containing closed-ended questions, with a Likert Scale (ranging from 1 poor to 4 excellent), and open-ended questions. The completion was anonymously done by the participants. **Results:** Out of the 74 CHW active in the Project, 66 (89.2%) completed the DL course and participated in this research. Regarding the course evaluation, content, methodology, speakers, and the platform used, 33 (50.8%), 46 (69.7%), 37 (56.9%), 47 (72.3%), and 44 (66.7%) CHW indicated as “excellent,” respectively. As a suggestion for improvement, the most cited was “adaptation to a more accessible language.” Regarding the face-to-face theoretical-practical training, 67 CHW (90.5%) responded to the questionnaire, with 29 CHW (43.2%) from the CG and 38 (56.7%) from the IG. The evaluation of the training overall, content, methodology, and duration was considered “excellent” by 52 CHW (77.6%), 49 (73.1%), 50 (74.6%), and 40 (59.7%), respectively. There was no significant difference between groups for the evaluated responses. Regarding practice for the IG, 31 (%) CHW indicated “increased confidence” in performing the physical examination of the breast. **Conclusion:** The evaluation of the training program showed positive results among CHW and increased their confidence in carrying out the actions of the Itaberaí Project.

Support: Avon Institute and Libbs Pharmaceutical.

Keywords: community health workers; training program; program evaluation.

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Variant analysis in the TP53 gene for families in the state of Goiás with suspected Li-Fraumeni syndrome: tool for early diagnosis and prevention of breast cancer

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Objective: Breast cancer is the most common type of cancer in the world. In Brazil, there is a high incidence of Li-Fraumeni syndrome (LFS), one of the main syndromes related to the development of hereditary breast cancer. This study aimed to identify the prevalence of variants in the TP53 gene in probands suspected of having LFS and their families. **Methodology:** We evaluated 123 patients who met the National Comprehensive Cancer Networking criteria for suspected hereditary breast cancer syndromes, who were referred to the Center for Human Genetics/Universidade Federal de Goiás (UFG) by Hospital das Clínicas/UFG. After applying the Informed Consent Form, 4 mL of venous blood was collected for DNA extraction used for next-generation sequencing and analysis of the entire coding region of the TP53 gene. The DNA library was prepared using the PCR target amplification method with the OncoPrint™ BRCA Expanded panel kit and subjected to sequencing on the Ion Torrent platform. Raw data were evaluated on the Ion Reporter platform, and variants were classified according to the American College of Medical Genetics. **Results:** Of the 123 patients evaluated, 12.19% (15/123) were positive for TP53 variants in seven different families. Variants c.1010 G>A (6/7) and c.455C>T (1/7) were identified. Within the families with variants, it was analyzed that 47.05% (8/17) of the family members tested were also positive cases, with 100% (17/17) not developing any type of cancer to date. **Conclusion:** These data alert to the considerable incidence of LFS in the state of Goiás and draw attention to the power of directing treatment and prevention of breast cancer that genetic tests could provide for our population, with the possibility of personalization monitoring high-risk families.

Keywords: hereditary breast cancer; NGS; Li-Fraumeni syndrome; TP53.

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Diagnostic accuracy study of magnetic resonance breast spectroscopy

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Objective: The objective of this study was to analyze the diagnostic accuracy of breast magnetic resonance spectroscopy in comparison to breast biopsy. **Methodology:** Diagnostic accuracy study of qualitative cross-sectional analysis to perform breast magnetic resonance spectroscopy was carried out on 215 women over 18 years of age who agreed to participate in the study. Data were verified using normalized Q-Q plot analysis and standardized residual histogram. To analyze the patients' profile, the chi-square test, Student's t-test, and kappa index were performed for agreement between observers. The sensitivity and specificity of the spectroscopy were tested using the ROC curve compared with the results of the biopsies using SPSS version 26.0. The significance level was 5% ($p < 0.05$). **Results:** The most important findings were breast lumps with a total of 59.1%, followed by cysts with 18.1% of the total. Cho Ratio values in relation to creatine were found to be altered in 76.3% of results. The kappa index between observers was 99%. After biopsies, 74.4% of the results were malignant and 25.6% were benign. After analysis, 81.8% of the benign ones were BI-RADS[®] 3 and 41.3% of the malignant ones were BI-RADS[®] 4, with 19.4% of malignancies for BI-RADS[®] 4 and 12.5% for BI-RADS[®] 6, in this case, confirming the findings of previous exams. To evaluate the accuracy of the results found, an ROC curve analysis was performed in comparison with the breast biopsy which is considered the gold standard for diagnosing breast cancer. The Cho Ratio had an average sensitivity of 98% and an average specificity of 89%. Cho Integral also has a sensitivity of 98% and a specificity of 92%. **Conclusion:** As demonstrated in this study, after statistical analysis, the model was efficient in predicting breast diagnosis.

Keywords: breast cancer; accuracy study; MRI spectroscopy.

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Suspicious mammographic findings out of the age range recommended by Brazilian Ministry of Health

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Objective: The objective of this study was to evaluate Brazilian's data about the results of mammography screening obtained from the systematization of the Breast Imaging-Reporting and Data System (BI-RADS) in categories 4 and 5 in women between 40–49 years old and 70–74 years old, age range not contemplated by the current recommendation of Brazilian Ministry of Health. **Methodology:** This is an epidemiological descriptive, quantitative, and comparative study based on analysis of the data extracted from the System of Cancer Information (SISCAN), in the period between 2019 and 2023, analyzing the age range of 40–49 years old and 70–74 years old, seeking reports of mammographic findings: BI-RADS 4 and 5. Comparisons were made between the reports that suggested breast cancer in the age range recommended (screening between 50 and 69 years old) and not recommended by the current recommendation of the Brazilian Ministry of Health. **Results:** In the period between 2019 and 2023, a total of 116,833 mammograms were performed obtaining the results in the categories BI-RADS 4 and 5. Considering the age range that was not elected by the Brazilian Ministry of Health for screening, a total of 31,393 (26.86%) cases between 40 and 49 years old and 8,298 (7.1%) between 70 and 74 years old were found, representing 33.96% cases of 116,833 mammograms performed in the last 5 years. **Conclusion:** In view of the verified data, this study shows the relevance of the expansion in the screening of breast cancer in women because 33.96% of findings that suggested breast cancer were not being diagnosed by following the Brazilian Ministry of Health recommendation, showing how necessary is to give attention into public politics targeting to reconsider the current established recommendations.

Keywords: breast neoplasms, diagnostic screening programs, mammography.

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Gastrin-releasing peptide receptor as a promising prognostic biomarker in breast cancer

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Objective: Previous studies indicated a positive correlation between gastrin-releasing peptide receptor (GRPR) and estrogen receptor (ER) levels, suggesting a potential association between these receptors and tumor progression. This study aimed to verify the expression and prognostic implications of GRP and GRPR in breast cancer by analyzing multiple cancer-related databases. **Methodology:** The expression and prognosis of GRP and GRPR in breast cancer were assessed using different databases, including ONCOBD, Gent2, and Gene Expression Profiling Interactive Analysis (GEPIA). **Results:** Bioinformatics analysis revealed overexpression of GRPR in breast cancer compared with healthy tissue, while GRP level was similar in both samples. The expression of GRP and GRPR was positively correlated with estrogen receptor and grade 1 tumors ($p < 0.001$). Among the breast cancer subtypes, Luminal A showed the highest levels of GRP and GRPR, followed by Luminal B, HER2+, TNBC, and basal. Prognosis analysis using Gent2 indicated better outcomes for breast cancer patients with higher expression of GRP and GRPR, showing improved overall survival (OS) compared with those with low expression ($p = 0.004$). However, in GEPIA, no difference was observed in OS in patients with high and low expression of the biomarkers. Additional studies are needed to elucidate these relationships. **Conclusion:** Our findings suggest that GRP and GRPR expression correlates with estrogen receptor positivity in breast cancer and may be associated with a good prognosis for breast cancer patients. Furthermore, the overexpression of GRPR in breast cancer suggests its potential as a novel prognostic biomarker and might be useful as a therapeutic target in cancer treatment.

Keywords: breast neoplasm; gastrin-releasing peptide; computational biology; estrogen receptor.

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Characterization of an epigenetic regulatory network on basal-like breast cancer subtype and its impact on signaling pathways and biological processes

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Objective: The main objective of this study was to identify DNA methylation at the distal cis-regulatory genomic regions associated with the basal-like breast cancer (BLBC) subtype, construct an epigenetic regulatory network, and determine its impact on cancer-associated signaling pathways and biological processes. **Methodology:** BLBC (n=134) and non-tumoral breast (n=84) samples with DNA methylation, mRNA, and miRNA expression data were downloaded from The Cancer Genome Atlas (TCGA) database using a pipeline of computational tools. DNA methylation patterns on cancer-specific enhancers enriched for transcription factor (TF) binding sites and potential master regulators TFs were identified. An epigenetic network among these elements and miRNA expression was constructed and analyzed in relation to the involved signaling pathways, biological processes, and potential interaction with druggable targets. **Results:** The analysis revealed 152 differentially methylated genes (99 hypomethylated and 53 hypermethylated) between BLBC and non-tumoral breast samples, with alterations negatively correlated with gene expression. Additionally, 500 miRNAs (317 upregulated and 183 downregulated) were observed differentially expressed between these groups. The regulatory network constructed from these elements implicated major regulators of cancer-associated signaling pathways, including AR, ErbB, KRAS, mTORC1, NOTCH, PI3K, TGF- β , NF- κ B, WNT- β , and P53. Based on the DNA methylation status, the biological processes involved were primarily related to the cell cycle, cell binding activities, and transcription signaling pathways. Finally, drug-target analysis interactions of the regulatory pairs revealed 24 drugs commonly used in cancer treatment, such as 5-fluorouracil, methotrexate, cisplatin, and tamoxifen. **Conclusion:** In summary, this study demonstrated the impact of DNA methylation on distal genomic regions of transcription sites, revealing a complex and intricate epigenetic regulatory network involving genes, miRNAs, and TFs, highlighting the molecular heterogeneity of the BLBC. Additionally, the identification of critical signaling pathways and the potential druggable targets and pharmacological compounds found to interact with this epigenetic network indicate their potential role as therapeutic targets for BLBC.

Keywords: breast cancer; basal-like; epigenetics; DNA methylation; microRNA; transcription factor; regulatory network.

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Understanding and adherence level of community health workers to breast cancer screening according to the protocol established in the Itaberaí Project

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Objective: The objective of this study was to evaluate the level of understanding and adherence of CHW according to the protocol of the Itaberaí Project (PI), aiming at breast cancer screening. **Methodology:** This is a clinical, controlled, randomized, multicenter, phase III trial, where the unit of observation was the engagement of community health workers (CHW) in the PI. With randomization, CHW were randomly allocated to the control group (CG) and intervention group (IG). For evaluation and comparison between groups of CHW understanding and adherence levels to the Project, a specific questionnaire was developed, with closed questions, according to the Likert scale and filled out anonymously.

Results: Out of the 74 CHW active in the Primary Health Care Network in Itaberaí, 65 participated in the research, with 34 (52.3%) in the CG and 31 (47.7%) in the IG. The average length of time working as a CHW was 17.09 years \pm 7.15 in the CG and 16.38 \pm 8.02 in the IG ($p=0.69$). There was no significant difference in educational level between groups ($p=0.59$). Regarding understanding, there was no significant difference between the Groups, as 100% of CHW understand that their role is to guide women on early detection and diagnosis, identify possible breast changes, and refer them to basic health units (BHUs). Regarding what could improve women's adherence to the PI, 25 (73.5%) CHW from the CG and 29 (93.5%) from the IG reported that investing in greater Project publicity through media would be beneficial. Regarding the level of CHW adherence to the PI according to the Likert scale, a higher prevalence of "extremely committed" was observed, with 28 (82.3%) CHW from the CG and 24 (77.4%) CHW from the IG. **Conclusion:** The results suggest that CHWs have an understanding of their role in the PI and grasp its importance for breast cancer screening.

Support: Avon Institute and Libbs Pharmaceuticals.

Keywords: community health workers; screening; breast cancer.

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The role of tumor-associated macrophages in the prediction of sentinel lymph node involvement in breast cancer

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Objective: The purpose of this study was to evaluate the association between the TAM density of breast tumor stroma and sentinel lymph node involvement. **Methodology:** The cohort consisted of patients with histopathological diagnosis of early-stage invasive breast cancer submitted to mastectomy or quadrantectomy and sentinel lymph node biopsy between January 2007 and December 2012 at a Brazilian referral hospital (A.C.Camargo Cancer Center). Using tissue microarrays, 101 tumors were submitted to immunohistochemistry for total macrophages (CD68), M2 macrophages (CD163), M1 macrophages (HLA-DR), and proliferating macrophages (double staining for CD68 and Ki67). **Results:** The cut-off values for the macrophage markers were CD68 (110 céls/mm²), CD163 (25 céls/mm²), and HLA-DR (80 céls/mm²). No association was observed between the TAM density of breast tumor stroma and sentinel and lymph node involvement. Low CD68 and CD163 expression was associated with luminal tumors, while high CD68 and CD163 expression was associated with hormone receptor-negative tumors, histological grade III, and high mitotic indices. HLA-DR was not correlated with hormone receptor status, HER2, or anatomopathological variables. Most macrophages displayed no proliferation. **Conclusion:** Stromal TAMs are not predictive of axillary involvement in tumors of good prognosis.

Keywords: tumor-associated macrophages; sentinel lymph; breast cancer.

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Evaluation of tumor-infiltrating lymphocytes as a predictive biomarker of recurrence in patients with ductal carcinoma *in situ* of the breast

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Objective: The objective of this study was to evaluate the association between tumor-infiltrating lymphocytes (TILs) in ductal carcinoma *in situ* (DCIS) samples and disease recurrence. **Methodology:** This is a retrospective cohort study with patients diagnosed with DCIS and treated at the University of São Paulo. We included women over 18 years old with a diagnosis of DCIS who underwent treatment from January 2007 to December 2020. Male patients, patients with a diagnosis of invasive or microinvasive disease in the anatomopathological examination of the surgical specimen, or patients with a history of any neoplasm were excluded. The main outcome was survival analysis according to the quantification of TILs, adjusted for potential confounders. Two pathologists evaluated TILs in the sample with the highest tumor representation and numerically quantified it as a percentage. Kaplan-Meier curves, log-rank tests, and Cox regression models were used to evaluate survival. Chi-square tests were used to evaluate the association between categorical variables.

Results: A total of 283 patients met the eligibility criteria. The mean follow-up was 77.2 months, with a recurrence rate of 9.2%. The mean age of patients was 55 years. Clustered amorphous microcalcifications were the most prevalent mammographic presentation. The most frequent histological and IHC features were cribriform presentation (73%) and ER positivity (86%), respectively. We observed that tumors with focal necrosis (HR 6.4 [1.39–34.71] $p=0.018$) or comedo necrosis (HR 4.53 [1.34–15.28] $p=0.015$) had higher risks of recurrence. Patients with a percentage value of TILs, greater than or equal to 17% also had a higher risk of recurrence (HR 2.97 [95%CI 1.17–7.51] $p=0.02$). These patients were mostly under 65 years of age (OR 0.45 [95%CI 0.21–0.97] $p=0.049$). In a multivariate model, CN and TILs>17% remained significantly associated with recurrence ($p=0.034$ and $p=0.035$, respectively). **Conclusion:** In our cohort, the high value of TILs (>17%) and the presence of CN were independently associated with DCIS recurrence.

Keywords: ductal carcinoma *in situ* of the breast; recurrence; tumor-infiltrating lymphocytes; immunological microenvironment.

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The alarming level of sexual dysfunction among Brazilian women with early breast cancer undergoing adjuvant endocrine therapy

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Objective: This study aimed to determine the frequency of sexual dysfunction among women with early breast cancer on adjuvant endocrine therapy and to explore its relationships with patients' clinical and social characteristics and healthcare insurance. **Methodology:** Women with a history of early-stage ER+ invasive carcinoma of the breast on adjuvant endocrine therapy for at least 6 months and at least one sexual intercourse in the previous 4 weeks were evaluated for sexual dysfunction with the Female Sexual Function Index questionnaire. Demographic and clinical information was reviewed from medical records. Data collection was done with the RedCap software, and statistical analyses were performed on the software R (R Core Team (2022)). **Results:** From June 2021 to March 2024, 774 patients were recruited in 15 institutions. The mean age was 56.8 years, 38.8% were premenopausal, and 65.1% received chemotherapy. The mean duration of endocrine treatment was 3.7 years. Only 315 (54%) out of 774 patients in this study had a sexual intercourse in the previous 4 weeks before evaluation and were included in the analysis. Sexual dysfunction was found in 252 (89%) participants with active sex life. Age was significantly associated with sexual dysfunction with women >40 years old having higher rates (95.3%) compared with younger patients (10%, $p=0.01$). Patients without sexual dysfunction had significantly higher EORTC QLQ C30 domain scores. ET duration between 2 and 5 years vs. <2 years, higher vs lower education level, EORTC QLQ-BR23 breast symptoms, and sexual functioning higher scores were significantly associated with the occurrence of sexual dysfunction in multivariate analysis ($p<0.05$). **Conclusion:** Sexual dysfunction is a great concern for women. In our study, only 56.37% of women evaluated had sexual intercourse in the previous 4 weeks, and of those women, 89% reported sexual dysfunction. This is a major health problem and strategies to improve this issue are crucial.

Keywords: endocrine therapy; breast cancer; sexuality; adjuvant treatment.

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Does the intrinsic chemoresistance profile modulate the efficacy of neoadjuvant chemotherapy in breast cancer patients?

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Objective: This study aimed to validate the efficacy of an *in vitro* chemoresistance platform, Bioverso[®], to demonstrate tumor resistance in breast cancer (BC) patients with partial response to neoadjuvant chemotherapy (NACT).

Methodology: Patients with primary invasive BC and who presented residual disease (RD) after NACT were included. Fresh tumor samples were collected during biopsy or surgery and dissociated to obtain the tumor cells. The tumor cells were cultured in the Bioverso[®], with eight cytotoxic drugs, and after 72 h, cell viability was evaluated. The test result is defined as low, medium, and high resistance. **Results:** Seven primary tumors and 26 RD after NACT were tested in the chemoresistance platform. Of the RD cohort, 42.3% exhibited triple-negative BC (TNBC) followed by 30.7% of Luminal. A predominant fraction (61.5%) had received a regimen of doxorubicin, cyclophosphamide, and paclitaxel. A marked high resistance was observed across all tested drugs (mean of high resistance: 88% taxanes, 51% anthracyclines, 72% platins, 27% cyclophosphamide, and 67% gemcitabine). Of these patients, 11.5% experienced local recurrence, 23% developed metastases, and 3 (11.5%) patients died from disease progression. We also tested seven primary tumors that were referred to NACT. One (14.3%) achieved pathological complete response (pCR), one (14.3%) had downstaging with residual microinvasion, and five (71.4%) exhibited a poor response. In the chemoresistance platform, the tumors with poor response to NACT presented higher rates of medium-high resistance to the administered drugs. Indeed, they also have a more resistant profile for the eight cytotoxic drugs tested. **Conclusion:** The preliminary finding highlighted the efficacy of Bioverso[®], in demonstrating distinct drug resistance patterns in BC, suggesting a role of intrinsic resistance in the suboptimal response to NACT that could influence the worse prognosis of patients.

Keywords: breast neoplasms; neoadjuvant chemotherapy; drug therapy; residual neoplasms; drug resistance.

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Analysis of the Magee 3 equation for assessing prognosis in breast cancer treatment

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Objective: In the treatment of breast cancer, along with molecular tests, tools such as Residual Cancer Burden (RCB) and Magee equations (ME) are used for prognosis. Linked to the OncotypeDX recurrence score, ME3 also predicts pathological complete response. Our objective is to evaluate the relationship of ME3 with overall survival (OS) and disease-free survival (DFS) and estimate the association between RCB and ME3. **Methodology:** This retrospective cohort study was carried out at the Cancer Institute of the State of São Paulo of the Hospital das Clínicas of the Faculty of Medicine of the University of São Paulo (ICESP/HCFMUSP) including patients with HER2-negative and HR-positive BC undergoing chemotherapy neoadjuvant treatment (NCT) from January 2011 to December 2017. OS and DFS analyses were performed using the Kaplan-Meier method and the log-rank test. ME3 scores were categorized into low (<18), intermediate (18–31), and high risk (>31). The association between these categories and the RCB categories was assessed using the chi-square test. **Results:** We enrolled 143 women (mean age: 50.3 years, range: 25–85 years). Pre-NCT, 55.2% had tumors >5 cm, and 35% had no axillary lymph node involvement (N0). The median OS time was 71.5 months, with a longer OS (43 months) observed for low ME3 values. A statistically significant association was found between ME3 and OS (HR=4.56, 95%CI 1.35–15.43, p=0.015), which was not observed for DFS (HR=2.33, 95%CI 1.06–5.13, p=0.036). Regarding RCB scores, 88.1% had moderate (RCB-II, 42.7%) or extensive (RCB-III, 45.4%) residual tumor burden. For ME3, 37.1% had a low value and 53.8% had an intermediate value. An inverse association was identified between RCB and ME3, a statistically significant relationship ($\chi^2=39.3215$, p=0.000). **Conclusion:** ME3 demonstrated a statistically significant association with RCB and OS and could serve as an alternative to Oncotype Dx in resource-limited countries.

Keywords: breast cancer; neoadjuvant therapy; prognosis.

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Integrated health technological solution for the resolution of breast cancer screening actions: Itaberaí Project

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Objective: This study aimed to present the technological solution of the ITABERAÍ Project, characterizing a set of services and applications to integrate actions from the registration of study participants to the follow-up of altered cases.

Methodology: The technological solution involves integrating the mobile application (Rosa App) with the web system (RosaWatch). The App was developed for use by the Community Health Workers (CHW), in collecting data on study participants, and the system was created for the follow-up of altered cases, from suspicion to diagnostic confirmation and initiation of treatment, and is used by coordinators of the National Health Strategies (NHS), regulation, specialists, and participating study centers. The graphical interface of the App was developed in Dart/Flutter, and the Backend was written in Python/Flask for the creation of the application programming interface (API), responsible for communication between the database and the application. For the relational database, MySQL is used. The web system was designed in Python/Flask, and for HTML pages, CSS/Bulma and Javascript were used. For analysis and interpretation, the database is exported to the RedCap Platform. **Results:** Currently, there are 98 users, all of whom have received training for the use of the technological platforms, with good acceptance and high rates of proper completion. So far, 3101 women have been randomized, with 1607 (51.8%) in the control group and 1494 (48.2%) in the intervention group; of these, 235 (15.7%) have already completed Cycle 2 of the trial. The App is in version 1.8, and the web system is in version 1.1. **Conclusion:** The technological solution proved to be an important strategy for consolidating information and facilitating the follow-up of altered cases identified by both CHW and NHS. It is user-friendly and effective for data collection, storage, and export for analysis, which contributes to the resolution of actions for breast cancer screening and the improvement of public policies.

Support: Avon Institute and Libbs Pharmaceuticals.

Keywords: mobile applications; screening; breast cancer; community health workers.

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Evaluation of the endometrium of women who used tamoxifen: correlation between ultrasonographic, hysteroscopic, and histological findings

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Objective: Tamoxifen (TAM) has been increasingly used for an extended period, longer than 5 years. Secondary endometrial thickening is a common finding, unrelated to disease. The main objective was to evaluate the correlation between abnormal echographic and hysteroscopic findings of endometrial study with clinical manifestations and histological diagnosis in women with a history of breast cancer and the use of TAM. **Methodology:** This is a retrospective study in which medical records of women who underwent hysteroscopy due to endometrial alterations at ultrasonography (US) or abnormal uterine bleeding (AUB), with a history of breast cancer and use of TAM, were reviewed. Patients on current or previous treatment for breast cancer and use of TAM, symptomatic or not, were also evaluated with US and referred to hysteroscopy if endometrial thickness ≥ 9 mm, intracavitary imaging, or AUB. For data analysis, only postmenopausal patients were included (n=50). A control group was formed by postmenopausal women without a history of breast cancer, with endometrial thickness ≥ 5 mm, intracavitary imaging, or AUB (n=47). It was approved by the ethics committee (CAAE=26397219.4.0000.5149). **Results:** US had good sensitivity in the case group (94.1%) and very unsatisfactory specificity (15.2%) in relation to the final histological result, with 63.6% of false-positives. Hysteroscopy had also high sensitivity (94.1%) and higher specificity than US (72.7%). The percentage of false-positives was 36.0%. Older age was related to altered anatomopathological findings (p=0.036). In the control group, US was also less effective compared with hysteroscopy, but with more cases with altered histopathology. **Conclusion:** The US correlation with the hysteroscopic image and histology in women using TAM is poor. Although hysteroscopy is more accurate, it should not be used as a screening method either. US and hysteroscopy showed similar results in the control group. Outpatient hysteroscopy was very tolerable, with or without biopsy.

Keywords: tamoxifen; endometrium; ultrasonography; hysteroscopy; hystology.

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Evaluation of pathological complete response in axilla in patients with triple-negative breast cancer and pathological complete response in breast: a systematic review

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Objective: The role of neoadjuvant chemotherapy in breast cancer has been crucial in obtaining prognostic information through systemic treatment response. Thus, the aim was to evaluate the rate of pathological complete response in patients with triple-negative breast cancer who demonstrated pathological complete response in the breast and to determine if it is possible to predict pathological complete response in the axilla based on breast response. **Methodology:** This is a systematic review conducted following the PRISMA protocol and registered in the study registry PROSPERO ID: 498121. PubMed, Embase, and Web of Science databases were consulted with a selection of 180 studies. The Rayyan platform was used for article screening by two independent evaluators until the final selection. The final selected studies were subjected to the Newcastle-Ottawa Scale for methodological quality assessment. **Results:** Ten cohort studies evaluating breast and axilla pathological response after neoadjuvant treatment in breast cancer patients, including triple negatives, were included. In this population, the percentage of pathological complete response in the axilla was higher than the pathological complete response in the breast in almost all studies. Furthermore, in no study, a pathological response in the breast was greater than the response in the axilla. The overall rate of pathological response solely in the breast in the triple-negative population was 33.4%, solely in the axilla was 49.3%, and considering complete pathological response (breast and axilla) was 26.9%. **Conclusion:** Despite triple-negative tumors presenting an excellent rate of complete pathological response, there is no directly proportional relationship between breast and axilla response rates. Thus, it is still not possible to affirm that pathological complete response in the breast can predict pathological complete response, even in a tumor subtype with high chemosensitivity. Other factors beyond the tumor subtype may interfere with this response pattern.

Keywords: systematic review; triple-negative breast cancer; neoadjuvant chemotherapy; pathological response.

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Capivasertib and fulvestrant, a new salvation for hormone receptor-positive breast cancer? A systematic review

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Objective: The treatment of estrogen receptor-positive (ER+) cancer has advanced significantly with the use of targeted therapies, but there are still cases in which therapy fails, therefore, carrying out a systematic review to address a treatment option for these cancers and visualize the importance of approval in Brazil. **Methodology:** We comprehensively searched the PubMed database for trials and phases I, II, and III that included treatment with capivasertib and fulvestrant in their papers. Our systematic review followed the PRISMA statement guidelines. **Results:** Cabivasertib in conjunction with fulvestrant is a new therapeutic modality for hormone-positive breast carcinomas refractory to conventional treatment because the mutability rate of these tumors is high and generates resistance to the various hormonal drugs already established on the market, such as tamoxifen and anastrozole. From the phase 2 FAKTION study, 140 patients were eligible for the study, in which 69 achieved dual treatment with a survival of 10.3 months compared with a placebo survival of 4.8 months. In the phase 3 CAPItello-291 study, 708 patients were eligible, and the overall survival was higher in the dual treatment group. Changes in AKT1 were found in 289, and the treatment resulted in a survival of 7.3 months compared with a survival of 3.1 months with a placebo. The adverse effects of the drugs were rash, diarrhea, hyperglycemia, kidney injury, vomiting, and atypical pneumonia due to indirect alteration of the immune system. **Conclusion:** It was evident that dual therapy capivasertib with fulvestrant is quite effective in the proposed treatment, even more so in patients with altered PI3K/AKT1/PTEN pathways, with efficacy and improvement in survival twice that of conventional treatment, and with less adverse effects comparable with the classic therapy. With this, it is safe to affirm the need for ANVISA to take the lead in this advancement in treatment and approve the treatment.

Keywords: breast cancer; estrogen receptor-positive; capivasertib; fulvestrant.

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Scenario of breast reconstruction in the unified health system in Brazil

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Objective: This study evaluated the number of breast reconstructive surgeries performed in the SUS, in the period from January 2019 to January 2023, making a comparative analysis between mastectomies and breast reconstructions performed in the same period, in addition to observing the impact of the COVID-19 pandemic on a possible reduction in the number of breast reconstructive surgeries in the SUS after the year 2020. **Methodology:** It is a retrospective, cross-sectional, and descriptive study of available records of Health Centers linked to the Unified Health System, including data collection regarding the number of mastectomies and reconstructive breast surgeries performed in Brazil. Data were extracted from DATASUS. **Results:** In the period observed, 13,609 breast reconstruction surgeries after mastectomy with breast implants were recorded; 59,325 were non-aesthetic female breast plastic surgeries and 54 were bilateral reconstructive breast plastic surgeries, including bilateral silicone breast implants and silicone breast implants. There were also 288,599 radical mastectomies with axillary lymphadenectomy in oncology; 24,591 radical mastectomies with lymphadenectomy and 50,524 simple mastectomies in oncology; and 17,119 simple mastectomies. Therefore, we found a total of 380,833 radical breast oncological surgeries. When we take into account the year in which the procedures were performed, we noticed a trend toward a lower number of surgeries between the years 2020 and 2021, which may be related to the period of the COVID-19 pandemic. In 2019, 103,802 radical breast surgeries were performed with 20,312 reconstructive surgeries in total, while in 2020 and 2021, 89,958 and 86,085 mastectomies were performed, with 13,730 and 15,389 reconstructive surgeries, respectively. **Conclusion:** We found a rate of 19% of reconstructive surgeries in relation to radical surgeries for breast cancer, which corroborates data from the national literature. We believe that better training of surgeons who provide care in the SUS, as well as a better subdivision of medical teams, forming groups responsible only for reconstructive surgeries, can increase the number of immediate reconstructions, without jeopardizing the treatment of less aggressive cases with surgery of less complexity.

Keywords: mastectomy; radical mastectomy; breast cancer; breast reconstruction; SUS; DATASUS.

TV'S SESSION: EXHIBITION AREA

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Impact of surgical treatment on the quality of life of female public employees in the state of São Paulo after breast cancer treatment: a single institution cross-sectional observational study

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Objective: This study aimed to assess the quality of life (QoL) of breast cancer patients after surgical treatment, compare groups undergoing conservative, radical, and oncoplastic surgeries, and identify symptoms and treatment-related factors that worsen QoL. **Methodology:** This is an observational, cross-sectional, descriptive, and single-institution study that evaluated QoL in state public servants with breast cancer undergoing surgical treatment at the Hospital do Servidor Público Estadual de São Paulo (HSPE) from October 2021 to December 2022. The study included patients with *in situ* or non-metastatic invasive breast cancer who completed the assessment questionnaire. The European Organization for Research and Treatment of Cancer 30-Item Quality of Life Questionnaire instruments were used for QoL assessment. The study was submitted through Plataforma Brasil to the Research Ethics Committee of the Hospital do Servidor Público Estadual de São Paulo – Francisco Morato de Oliveira and filed on Platform Brasil with approval numbers (CAAE 68337823.4.0000.5463). All patients included in the study signed the TCLE. **Results:** A total of 300 patients with a mean age of 56.6 years were included in the study. The majority had a partner (55.69%) and completed higher education (72.15%). The most prevalent histological type was invasive breast carcinoma (79.74%), and 69.62% of tumors had a positive hormone receptor subtype. The most common surgical treatment was conservative surgery (77.21%). According to the questionnaire, the population's global QoL level (70.6) was satisfactory and the most affected function was emotional (65.1). The majority were satisfied with their appearance after treatment (74.9), but sexual satisfaction was impaired (57.4). **Conclusion:** Patients surviving BC evaluated in this study showed significant changes in QoL. The symptoms most reported by them were insomnia, pain, and fatigue. Advanced clinical staging and triple-negative molecular subtypes were associated with worse QoL scores. Conservative surgical treatment interfered less with QoL and oncoplastic surgery was associated with lower scores. Adjuvant radiotherapy did not impair QoL. Adjuvant chemotherapy was the systemic treatment that most interfered with the QoL of the patients evaluated.

Keywords: breast cancer; quality of life; surgery; conservative; radical; oncoplastic.

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Overall survival analysis of women with breast cancer: a 27-year historical cohort

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Objective: The objective of this study was to analyze the overall survival and prognostic factors of women with breast cancer in the city of Goiânia, based on a 27-year historical cohort. **Methodology:** This is a retrospective cohort study of overall survival carried out from 1988 to 2015. Data were collected from the Population-Based Cancer Registry of Goiânia, Goiás, Brazil. Survival curves were performed using the Kaplan-Meier method and the log-rank test. Multiple Cox regression analysis was also used. The significance level adopted was 5% ($p < 0.05$). The research was approved by the Ethics Committee. **Results:** Among the 7395 women included in the study, there was a predominance of the age group of 50–69 years (45.4%), localized disease (62.4%), and pure luminal phenotype (50.1%). The median survival was 122 months, and the overall survival at 5 and 10 years was 83.1% and 65.5%, respectively. Regarding race/color, white women had a longer survival rate compared with black women (average of 120 vs. 110 months). In the Cox regression analysis, the following factors were associated with reduced overall survival: age greater than 70 years (HR 1.33; $p < 0.001$), histological grade III (HR 1.21; $p = 0.042$), recipient of negative estrogen (HR 1.26; $p = 0.010$), negative progesterone receptor (HR 1.47; $p = 0.041$), triple-negative tumor phenotype (HR 2.36; $p = 0.008$), and regional disease extension (HR 1.73; $p = 0.023$) or metastatic (HR 2.67; $p = 0.012$). **Conclusion:** In the period analyzed, the overall survival of women with breast cancer was 83.1% in 5 years and 65.5% in 10 years. Several clinical, biological, and tumor factors influenced the prognosis in this population.

Keywords: breast cancer; women's health; survival analysis; epidemiology.

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BRCA1 AND BRCA2 germline pathogenic variants in Brazilian breast cancer patients from a private oncologic service in Goiânia, Goiás

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Objective: The objective of this study was to evaluate the clinical and pathological characteristics of a group of breast cancer (BC) patients presenting germline pathogenic variants (PV) in the BRCA1 and BRCA2 genes. **Methodology:** This descriptive study was approved by the Research Ethics Committee of PUC Goiás and comprised the retrospective analysis (clinical, genetic, and histopathological) of patients with BC and PV in BRCA1/BRCA2 genes, treated at a tertiary oncologic service. **Results:** Among 52 patients, 51 were women. The average age for the group was 42.3 years (± 11.8 years). An expanded germline genetic panel was performed in 88.6% of the cases, resulting in 29 BRCA1 PV (55.8%) and 23 BRCA2 PV (44.2%). The median time between BC diagnosis and genetic testing was 3 months. Genetic testing was performed before surgery in 72.0% of the patients with a BRCA1 PV and in 39.0% of those with a BRCA2 PV. The histological type was carcinoma without other specifications in 86.5% of cases and 48% presented histological grade 3. Among BRCA1 PV, estrogen receptors (ER) were negative in 79% and ER >10% in 78.3% among BRCA2 PV. Cancer in the contralateral breast was detected in 15.4% of the patients. Prophylactic contralateral mastectomy and salpingo-oophorectomy were performed in 73.0% and 57.7% of patients, respectively. With a follow-up period of at least 3 years in 78.8% of the patients, 92.3% were alive and four deaths were recorded, all of which occurred in patients with a BRCA2 PV, and of these, three evolved with progressive disease in the central nervous system. **Conclusion:** This is the largest retrospective epidemiological study including BC with BRCA1 and BRCA2 PV in the Central-West region in Brazil and one of the largest institutional series of BC patients with BRCA1 and BRCA2 PV in the country. With public policies that improve access to genetic testing in Goiás, new data are expected.

Keywords: gene BRCA1; gene BRCA2; genetic variant; mutation; breast neoplasm.

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Body composition, metabolic status, and level of physical activity in women with breast cancer under adjuvant hormonal therapy

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Objective: This study aimed to evaluate body composition, level of physical activity, and the presence of metabolic syndrome in women with breast cancer undergoing adjuvant hormone therapy. **Methodology:** Recruitment was carried out in two tertiary hospitals: one public and one private, with women under adjuvant hormone therapy for at least 6 months or more. Analyses included sociodemographics, body composition by bioelectrical impedance analysis, and biochemical and physical activity level questionnaires. Selected data were used to determine the presence of metabolic syndrome according to the classification of the National Cholesterol Education Program Adult Treatment Panel III (NCEP-ATP III).

Results: A total of 107 women were included, with a mean age of 56.9 years, a mean hormone therapy use of 3.4 years, and 81.3% postmenopausal. A total of 71.9% were overweight and 87.8% had high body fat percentage (mean 37.2%) and a mean skeletal muscle index of 6.7 kg/m². Metabolic syndrome was identified in 41.1% of the sample, and 50% of the patients were sedentary or with a low level of physical activity. Patients who have undergone prior chemotherapy had, on average, a 3.7% higher fat percentage ($p=0.0107$). For each increase of one unit in BMI, the chance of developing metabolic syndrome increases by 30% ($p=0.0003$). Patients with aromatase inhibitors had a 4.52 times greater chance of developing metabolic syndrome when compared with tamoxifen ($p=0.0074$). Patients in stages II and III had a 2.58 times greater chance of being in a lower category of physical activity instead of being in a higher category of physical activity than those with grade I ($p=0.0178$). Sedentary patients were more associated with a treatment interval of 2–5 years and patients with high physical activity were more associated with a treatment interval ≤ 2 years of hormonal treatment. **Conclusion:** Patients on adjuvant hormone therapy often had metabolic syndrome and high levels of body fat, even though they were physically active.

Keywords: body composition; breast cancer; metabolic syndrome.

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Prediction of recurrence after neoadjuvant chemotherapy in early triple-negative breast cancer

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Objective: This study aimed to explore the clinical and pathological biomarkers to predict recurrence after neoadjuvant chemotherapy (NACT) in triple-negative breast cancer (TNBC). **Methodology:** We retrospectively reviewed our institutional database to identify patients with TNBC who underwent NACT with anthracyclines and taxanes. Medical charts were analyzed to extract data. Log-rank was used to compare survival estimates and Cox proportional hazard to determine effects on survival. Approval from the Ethics Committee was obtained before the study procedures. **Results:** We identified 110 TNBC patients receiving NACT. The median age was 48 years, 60% had stage III tumors, and 30.9% achieved pathologic complete response (pCR). One-year disease-free survival (1y-DFS) was 74.6% (95% confidence interval [CI] 65.3–85.3). A higher risk of recurrence was observed in patients with residual disease (RD) (hazard ratio [HR] 5.0, 95%CI 1.17–21.52), stage III disease (HR 2.7, 95%CI 1.02–7.48), and neutrophil-to-lymphocyte ratio (NLR) >2 (HR 2.66, 95%CI 1.03–6.87). In a subgroup analysis, the percentage of tumor-infiltrating lymphocytes (TILs) ≥30% was a favorable prognostic factor in stage II disease (no patients recurred after a median follow-up of 13.2 months) but did not impact prognosis in stage III. Among patients with pCR, those who had NLR >2 had a significantly worse prognosis (1y-DFS: 100% vs. 75%, p=0.039), while TIL levels did not predict the risk of recurrence. The prognosis of patients who had RD after NACT was not related to TILs ≤30% (p=0.56) or NLR >2 (p=0.34). **Conclusion:** After NACT, patients with RD and those with high NLR despite pCR have a significant risk of recurrence. TIL levels did not discriminate recurrence risk within the subgroups of pCR or RD. As a readily available biomarker, NLR should be further explored to tailor treatment decisions.

Keywords: triple-negative breast neoplasms; drug therapy; survival analysis.

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Physiotherapist action after surgical treatment of breast cancer via teleconsultation

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Objective: This study aimed to evaluate the effect of teleservice in the immediate postoperative period of breast cancer, considering pain, fatigue, quality of life, mobility of the upper limb, and presence of lymphedema. **Methodology:** This is a prospective longitudinal study with 10 women 15 days after surgery, treated individually for 10 consecutive weeks, "Zoom Platform." Household resources were used for care, always with the help of a family member. They were evaluated regarding quality of life, pain, fatigue, presence of lymphedema, and range of movement. All were approached in the immediate post-operative period where initial guidance was given regarding skin care and arm movements. As a treatment, we use progressive exercises, including respiratory, metabolic, upper limb mobility, and myofascial mobilization associated with self-drainage based on complex decongestive therapy. Data were statistically analyzed with KS and t-test ($p \leq 0.05$). This study was approved by the Brazil Platform (CAAE: 56561222.9.0000.0084). **Results:** The participants were 65.4 ± 10 years old and 25.08 ± 3.9 kg/m², and 70% underwent quadrantectomy. Perimetry was maintained, and the pain and fatigue of the participants improved, with no edema/lymphedema occurring. In range of movement, there was a statistically significant increase in flexion ($p=0.03$) and abduction ($p=0.03$) movements, allowing a reduction in kinesiophobia; quality of life did not change. **Conclusion:** Teleconsultation made it possible to evaluate the participants' symptoms and willingness to receive care. The proposed therapies demonstrated great improvements in shoulder range of motion, allowing the maintenance of functionality in daily activities. The early gain in the range of motion also prepared women to face future treatments such as chemotherapy and radiotherapy.

Keywords: breast neoplasms; physical therapy modalities; primary health care; kinesiophobia; breast cancer lymphedema.

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Analysis of the time interval between breast cancer detection and diagnosis in the Brazilian Unified Health System from 2008 to 2014

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Objective: This study aimed to present an analysis of the time interval between the detection and diagnosis of breast cancer among women whose diagnosis was registered in the Unified Health System (SUS) between 2008 and 2014 in the five geographic regions of Brazil. **Methodology:** This study is part of the project "Evaluation of the epidemiological, economic and care trajectory of high-cost procedures in the SUS," approved by the UFMG Research Ethics Committee. This is a retrospective cohort study using data from the "National Oncology Database," analyzed using descriptive and exploratory statistics. The results, presented in tables and graphs, included medians and interquartile ranges (Q1 and Q3) stratified by sociodemographic variables, tumor staging, and occurrence of death during the study period. Women diagnosed with breast cancer registered with the SUS between January 1, 2008, and December 31, 2014 (204,305 women), participated. The main reason for exclusion was not having undergone any breast cancer diagnostic exam through the SUS (125,480 women; 61.42%). After exclusions, data from 65,555 women (32.07%) were analyzed. **Results:** The time interval between detection and diagnosis of breast cancer varied depending on the geographic region, with a Brazilian median of 132 days (Q1=61; Q3=294); only 11% of women completed the diagnosis within 30 days. The majority of the population was made up of white women (59%) aged between 40 and 59 years; 75.5% of women had stage 2 or more advanced tumors. Women with stage 3 and 4 tumors had the shortest time intervals to diagnosis. Similar patterns were found among women who died from breast cancer, with a higher proportion of deaths among indigenous and black women. **Conclusion:** These results indicate the fragility of the care trajectory and highlight the challenge of implementing the diagnosis within 30 days, as determined by Law No. 13,896/2019, which came into force in Brazil in April 2020.

Keywords: breast neoplasms; public health service; early diagnosis; delayed diagnosis.

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Histopathological findings of patients undergoing vacuum breast biopsy

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Objective: This study aimed to categorize the histopathological findings of breast lesions investigated through vacuum-assisted biopsy, in a reference service, using the National Health Service Screening Program (NHSBSP) classification.

Methodology: This was a cross-sectional observational study. Information was collected from a database available in a private clinic in the city of João Pessoa/PB – UD Diagnóstico por Imagem from June 2021 to June 2023. A total of 416 female patients who underwent the procedure were included in this study, and 13 patients who did not have data on anatomopathological results were excluded, totaling a final sample of 403 patients. Associations between categorical variables were verified using the chi-square test or Fisher's exact test. The significance level will be 5%. **Results:** Patients were divided according to the classification of the anatomopathological results of the lesions by the NHSBSP category. Of the 403 patients, 2 were selected as B1 (0.5%), 224 (55.6%) were selected as B2, 123 (30.5%) as B3, only 1 (0.2%) as B4, and 53 (13.2%) as B5. Of the B3 lesions, 66.67% corresponded to histopathological findings of radiating scar. Of the malignant lesions (B5), the highest percentage was histopathological results of ductal carcinoma *in situ*, representing 58.49% of the lesions. Of these cases, 30 (96.7%) were diagnosed using aspiration biopsy guided by mammography and with the indication of the procedure due to grouped Bi-RADS[®] 4 microcalcifications. The microcalcifications for B5 lesions compared with B3 lesions were significant $p < 0.0001$. **Conclusion:** The prevalence of "*in situ*" lesions favors the early diagnosis of breast neoplasms. Mammotomy has proven to be a safe and effective method for diagnosing suspicious non-palpable lesions, and benign cases can be considered treated.

Keywords: breast neoplasms; carcinoma intraductal noninfiltrating; breast carcinoma *in situ*; pathology; biopsy.

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Cancer health disparities among patients with estrogen-receptor-positive invasive breast carcinoma undergoing adjuvant endocrine therapy: impact of insurance coverage

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Objective: Challenges in social dynamics and disparities in healthcare persist within the context of cancer care in Brazil, and there is a gap regarding access to optimal care between patients in the public and private health systems. The objective of this study was to describe patients' characteristics at diagnosis and patterns of treatment received and to evaluate diagnosis-to-treatment interval and their association with health insurance coverage. **Methodology:** We performed a real-world data analysis among women with a history of early-stage ER+ invasive carcinoma of the breast on adjuvant endocrine therapy for at least 6 months in 15 centers of five different Brazilian regions. Data collection was done with the RedCap software. Analyses were performed in SAS 9.4. **Results:** From June 2021 to March 2024, 774 patients were included. The mean age was 56.8 years; 52.2% were publicly insured. Treatment at public institutions was significantly associated with more premenopausal patients (47.6% vs. 29.2%, $p<0.0001$), living without a partner (46.8% vs. 34.7%, $p=0.001$), lower educational level (46.1% vs. 6.8%, $p<0.0001$), stage III tumors (29.1% vs. 13.5%, $p<0.0001$), mastectomy (35.0% vs. 29.8%, $p=0.001$), axillary dissection (40.6% vs. 18.1%, $p<0.0001$), chemotherapy (72.7% vs. 58.5%, $p<0.0001$), radiotherapy (87.2% vs. 78.7%, $p=0.003$), lower use of ovarian function suppression plus ET (4.2% vs. 18.8%, $p<0.0001$), lower use of CDK4/6 inhibitors (0.6% vs. 2.7%, $p=0.02$), and higher use of tamoxifen (53.8% vs. 29.4%, $p<0.0001$). The diagnosis-to-treatment interval was double for women treated in the public vs the private system (94 vs. 42 days, $p<0.0001$). **Conclusion:** Patients with public health coverage were diagnosed with later stages and received more local treatment and less intense and optimal endocrine therapy when compared with privately insured patients. Treatment initiation intervals exceeding the recommended 60-day limit were observed for patients receiving treatment in the public service, despite legal restrictions.

Keywords: breast neoplasms; antineoplastic hormonal agents; healthcare disparities; treatment delay; health insurance.

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Two years post-COVID-19: evaluating the impact on Brazil's breast cancer early detection program

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Objective: This study aimed to evaluate the impact of the COVID-19 pandemic on mammographic screening in Brazil over a 9-year span (2015–2023), focusing on BI-RADS[®] results, breast cancer diagnosis rates, and staging. **Methodology:** This ecological observational study used retrospective data from Brazil's mammographic screening database, DATASUS – SISCAN, covering females aged 50–69 years. We analyzed the number of mammograms, BI-RADS[®] results, and cancer staging, using a chi-square test to assess the variation from expected frequencies, with an alpha level of 0.05 for statistical significance. **Results:** From 2015 to 2023, 23,851,371 mammograms were performed, with 542,889 (2.3%) diagnostic and 23,308,482 (97.7%) screening. Of these, 15,000,628 met the inclusion criteria. In 2020, mammograms decreased by 39.6%, followed by a 12.6% drop in 2021. There was a slight increase in 2022 and a significant rise of 17.9% in 2023, though not reaching the anticipated 2,750,000 annual screenings. There was a notable increase in BI-RADS[®] 4 and 5 post-pandemic, suggesting a shift in staging patterns. Early-stage diagnoses were higher than expected pre-pandemic, while later-stage diagnoses (III and IV) increased post-pandemic, indicating potential delays in detection. **Conclusion:** The study revealed significant shifts in mammographic screening and breast cancer diagnosis over 9 years. There was a marked decrease during the pandemic with a subsequent rebound. The increase in BI-RADS[®] categories 4 and 5 and the shift to later-stage diagnoses post-pandemic underscore the pandemic's impact on the timeliness and stage of breast cancer detection in Brazil.

Keywords: breast cancer; screening; pandemic; COVID-19; mammographic.

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Analysis of biopsychosocial aspects of breast cancer survivors and apparently healthy women

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Objective: This study aimed to compare the biopsychosocial aspects of breast cancer survivors with apparently healthy women. **Methodology:** In the study, 62 women were participated and separated into group breast cancer survivors (BCS) (n=32; age: 52.93±8.95 years) and control group (CG) with apparently healthy women (n = 30; age: 52.16 ± 7.59 years). The functional performance was evaluated by the DASH, the kinesiophobia was evaluated by the Tampa Scale, the quality of life was evaluated by the EORTC BR23, and fatigue was evaluated by FACT B+4. The inclusion criteria for both groups were being in menopause and not participating in any regular resistance exercise program in the last 6 months. For the BCS group, the criteria were having undergone mastectomy or breast quadrantectomy and not having metastasized. Data normality was assessed by the Kolmogorov-Smirnov test. Pearson's correlation was used to evaluate the relationship between variables with normal distribution, while the Spearman correlation was used for variables without normal distribution. Statistical significance was set at $p \leq 0.05$. **Results:** There was a significant difference between groups on functional performance (BCS: 17.05±2.11; CNT: 2.61±6.22; $p < 0.001$) and kinesiophobia (BCS: 40.50±10.14; CNT: 36.16±6.87; $p = 0.05$), quality of life (BCS: 1.71±0.59; CNT: 1.07±0.36, $p < 0.01$), and fatigue (BCS: 80.68±12.46; CNT: 88.53±11.56, $p = 0.013$). **Conclusion:** The current results suggest the breast cancer survivors showed lower results of functional performance, kinesiophobia, quality of life, and fatigue in comparison with the women's apparent health.

Keywords: cancer; mental health; psychobiological profile.

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Prediction of pathologic complete response to chemoimmunotherapy in triple-negative breast cancer using tumor-infiltrating lymphocytes: exploiting cutoff values

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Objective: Triple-negative breast cancer (TNBC) prognosis is significantly influenced by tumor-infiltrating lymphocytes (TILs), but the lack of validated cutoff values limits their clinical applicability. This study aimed to assess TILs as predictors of pathologic complete response (pCR) within the Neo-Real study, a multicenter, real-world data investigation on neoadjuvant pembrolizumab plus chemotherapy (P+CT) for TNBC. **Methodology:** TILs were evaluated using the standardized methodology of the International TILs Working Group. Logistic regression and receiver operating characteristic (ROC) curve analysis were performed to evaluate the predictive ability of TILs and multivariable models for pCR. **Results:** The analysis included 128 patients. The pCR and results of ROC curve analysis for each TILs cutoff were as follows: 10%: pCR of 39% for TILs <10% vs. 69% for TILs ≥10% (AUC 0.635, accuracy 66.7%, sensitivity 78%, specificity 50%); 30%: pCR of 52.2% for TILs <30% vs. 78.8% for TILs ≥30% (AUC 0.608, accuracy 56.2%, sensitivity 35.6%, specificity 86%); 50%: pCR of 55.4% for TILs <50% vs 87.5% for TILs ≥50% (AUC 0.575, accuracy 50.4%, sensitivity 19.1%, specificity 96%). A cutoff of 10% demonstrated the highest accuracy for pCR, while high specificity was observed at a cutoff of 50%. The probability of residual disease if TILs ≥50% is considerably low. A multivariable logistic regression model, using TILs (≥10% vs. <10%), Ki67 (≥50% vs. < 50%), and tumor stage (III vs. II), exhibited the highest AUC (0.688) for predicting pCR. **Conclusion:** Our study underscores the predictive value of TILs for pCR following neoadjuvant P+CT for TNBC. Further enhancement of TILs' predictive potential may be achieved through multivariable models. The cutoff value of ≥50% identified patients with a very high probability of pCR. The results reinforce TILs' use as a biomarker for treatment de-escalation, especially for TILs ≥50%.

Keywords: triple-negative breast neoplasm; immunotherapy; tumor infiltrating lymphocytes.

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Regional disparities in breast cancer histopathological examination turnaround time: a 5-year comparative analysis in Brazil

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Objective: This study aimed to compare the turnaround time for histopathological examination in cases of breast cancer among the regions of Brazil over the last 5 years. **Methodology:** A retrospective study of descriptive and quantitative nature was conducted using secondary data obtained from the Cancer Information System (SISCAN), available on the DATASUS electronic platform. It evaluated Brazil's turnaround time for breast cancer histopathological examinations, covering the collection, laboratory arrival, and result release intervals over the past 5 years (2019–2023), comparing data across the nation's five regions. **Results:** The Central-West region demonstrated slightly the best percentage of examination completion within 30 days (65.8%), with 16.3% finalized after 60 days. The South region followed, with 65.3% of histopathological examinations completed within 30 days, and only 13.5% conducted after 60 days. Maintaining good performance, the Southeast region presented 65.1% of examinations reported within 30 days, with 14.1% released after 60 days. Meanwhile, the North and Northeast regions showed lower percentages of process completion within 30 days, with 47.3% and 50.1% of examinations, respectively. The percentage of analyses released only after 60 days is also higher, corresponding to 23.8% in the North region and 25.5% in the Northeast. In light of the foregoing, national data indicate an average of 58.5% of examinations reported within the first 30 days, with 18.9% of these released after 60 days. **Conclusion:** The results reveal significant variations in the turnaround time for histopathological examination of breast cancer cases among the regions of Brazil. These disparities underscore the importance of health policies aimed at optimizing diagnostic procedures in the country, especially in the context of breast cancer, where early detection plays a crucial role in the treatment and prognosis of patients.

Keywords: biopsy; breast cancer; socioeconomic disparities in health.

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Return to work after breast cancer treatment in state public employees in Brazil: a cross-sectional observational study

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Objective: The aim of the study was to evaluate the return-to-work (RTW) rate in public employee patients in the State of São Paulo with breast cancer who underwent surgical treatment in a single institution. **Methodology:** This is an observational, descriptive, cross-sectional, and single-institution study involving public employees, with non-metastatic breast cancer who underwent surgical treatment at the State Public Servant Hospital of São Paulo from October 2021 to December 2022. To assess the quality of life, the following instruments were used: the EORTC QLQ-30 and QLQ-BR-22 questionnaires. The study was submitted through Plataforma Brazil and approved (CAAE 68337823.4.0000.5463). **Results:** Of the 339 eligible patients, 300 (88.2%) were still working at the time of diagnosis. The RTW rate in this study was 74.41%. A significant majority of patients (80.6%) resumed employment within 6 months, whereas 15.1% returned between 6 and 12 months, and 12.8% between 12 and 18 months, respectively. The predominant reason cited for RTW was personal satisfaction with financial necessity prompting. In the EORTC BR-23 sub-questionnaire, referring to functional scales, patients who returned to work had a higher score in the body image assessment, an average of 76.0 vs. 52.3, when compared with patients who did not RTW ($p=0.032$). It was shown that the type of surgical treatment impacts the RTW rate ($p<0.001$). Among patients who RTW, 87.5% underwent BCS compared with 9.1% of those who did not RTW. In this same group, it was observed that 45.5% underwent radical and oncoplastic surgery. Adjuvant treatment also correlated with RTW; patients undergoing adjuvant chemotherapy have a 6.25-fold increased risk of not returning to work when compared with patients who did not undergo adjuvant chemotherapy. **Conclusion:** The RTW rate among state public employees in the state of São Paulo was 74.41%. It was observed that oncological treatment (surgical, chemotherapy, and radiotherapy) has a statistically significant association with the RTW rate. Socially, the offer of adjustment by the employer influences the RT decision, in addition to the patient's personal and work satisfaction. Returning to work is associated with the quality of life of women surviving BC.

Keywords: breast cancer; Latin America; return to work; survivorship.

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Epidemiologic analysis of mammographies and the pandemic impact on the early detection of neoplastic lesions in Tocantins from 2020 to 2023

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Objective: This study aimed to analyze the number of screening mammograms and the results obtained in the female population from 50 to 69 years old in the state of Tocantins during the pandemic and post-pandemic period. **Methodology:** This is a quantitative and comparative study from the pandemic period of 2020/2021 and the post-pandemic period of 2022/2023. Data were collected from the Cancer Information System (SISCAN/DATASUS) of women from 50 to 69 years old, comparing the mammography results from the pandemic and post-pandemic period. **Results:** During the pandemic, 9601 mammographies of women from 50 to 69 years old were performed considering the classified results by the Breast Imaging Reporting and Data System (BI-RADS) in comparison with the total of 12,208 mammographies in post-pandemic in the same conditions, representing an add of 27.1%. Considering the categories with major relevance, BI-RADS 0 has an increase of 33.57%, BI-RADS 4 with a rise of 100%, and BI-RADS 5 with an accrual of 27.77% in the post-pandemic interval. This increase in both categories with major malignancy has an add of 85.71%. Furthermore, BI-RADS 1, 2, and 3 showed an increase of 25.5%, gathering most women in the screening age, and BI-RADS 6 with follow-up in two patients. **Conclusion:** A significant increase was observed in the detection of suspected lesions when bringing expressive accrual results in more malignancy categories in post-pandemic, demonstrating a bigger detection in advanced cases that result in biopsy and follow-up with hormone therapy and chemotherapy. It is necessary to emphasize health prevention to identify women who do not take back their needs and the periodicity of mammography recommended by the government.

Keywords: breast cancer; diagnostic screening programs; mammography; pandemics.

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Intrinsic chemoresistance in luminal breast neoplasms: efficacy from an innovative *in vitro* chemoresistance platform

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Objective: The aim of this study was to validate an *in vitro* chemoresistance platform, BioversoÒ, to predict the responsiveness of luminal tumors to cytotoxic and target therapy drugs. **Methodology:** Patients with estrogen receptor (ER)-positive HER2-negative breast cancer (BC) who underwent upfront surgery were included. Fresh tumor samples were collected during surgery and dissociated to obtain the tumor cells. The tumor cells were cultured in the BioversoÒ with the drugs, and after 72h, cell viability was evaluated. The test result is defined as low, medium, and high resistance. **Results:** Samples from 31 patients diagnosed with ER+/HER- undergoing upfront surgery were tested in the BioversoÒ. A total of 18 (58%) patients presented luminal A tumors and 13 (42%) luminal B. A majority (83.8%) underwent breast-conserving surgery and sentinel lymph node biopsy (80%). The tumor staging revealed 61.2% T1, followed by 35.5% T2 and 3.3% T3 categories. Invasive ductal carcinoma was predominant (90%), with histologic grading of 23.4% grade 1, 63.3% grade 2, and 13.3% grade 3. Adjuvant chemotherapy, predominantly ACT regimen, was administered to 38.7% of the cohort. Over a median follow-up of 13 months, no recurrence was observed. The chemoresistance platform demonstrated higher rates of high resistance to taxanes (63.3% docetaxel and 70.9% paclitaxel), platin-based drugs (60% carboplatin and 46.4% cisplatin), and mTOR inhibitors (60% everolimus) compared with anthracyclines (22.6% doxorubicin and 25.8% epirubicin), cyclophosphamide (14.8%), and PARP inhibitors (36.8% Olaparib). The high resistance to taxanes, platin drugs, and everolimus corroborates existing literature, and the data regarding olaparib invite consideration for personalized treatment based on tumor biomarker profiling. **Conclusion:** The preliminary finding highlighted the capability of BioversoÒ to delineate distinct resistance patterns to both cytotoxic drugs and target therapies in luminal BC and suggest the potential influence of intrinsic tumor resistance in the differential response to BC treatments.

Keywords: breast neoplasms; drug therapy; taxanes; anthracyclines; drug resistance.

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Management disparity in elderly female with breast cancer following mastectomy: a cross-sectional study

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Objective: This study aimed to evaluate the oncologic approach of elderly women (≥ 70 years old) diagnosed with stage I–III breast cancer who undergoing mastectomy and compare with younger patients. **Methodology:** In this single-center study, we included a total of 930 female patients with early breast cancer who were undergoing mastectomy from January 2018 to December 2022 at Aristides Maltez Hospital. For this analysis, patients were divided in two groups (group 1: ≥ 70 years and group 2: < 70 years). We performed review of medical records and collected clinical and sociodemographic characteristics, in addition to data of surgery, systemic treatments and pathological reports. This study was approved by the Research Ethics Committee of Institute of Health Sciences at the Federal University of Bahia, with CAAE number 57203622.0.0000.5662. **Results:** Notably, 96 patients (10.3%) were 70 years old or older. Between the two groups, there was no statistically significant difference in demographics features or clinical stage, but group 1 had slightly more clinically node-positive (56.7% vs. 41.4%; $p=0.038$). Group 1 was submitted to more up-front surgery, even in more advanced stages, more axillary dissection (86.5% vs. 73%; $p=0.006$), but, in contrast, received less neoadjuvant chemotherapy (33.3% vs. 50.4%; $p<0.01$). Immediate breast reconstruction was performed less frequently in elderly patients (1% vs. 23.9%; $p<0.01$). Furthermore, elderly women received less adjuvant anthracyclines-based chemotherapy (52.5% vs. 76.7%; $p<0.01$) and more adjuvant chemotherapy with non-anthracyclines-based protocols (30% vs. 5.5%; $p<0.01$). **Conclusion:** In this study, we found management disparities between elderly and younger females with breast cancer. Elderly patients were undergoing to more axillary node dissection and less immediate breast reconstruction. Furthermore, 70 years old or older women received less neoadjuvant chemotherapy and anthracycline-based adjuvant therapy, even though there were no significant differences in clinical stage and elderly had higher incidence of positive axillary lymph node.

Keywords: breast cancer; elderly; mastectomy; neoadjuvant therapy; chemotherapy.

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The use of latissimus dorsi myocutaneous flap in locally advanced breast carcinoma

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Objective: This study aimed to evaluate the impact of the latissimus dorsi (LD) muscle myocutaneous flap in closing moderate to large chest wall defects in locally advanced breast carcinoma. **Methodology:** This study was approved by the Ethics Committee under number CAAE: 45093521.3.0000.5437. A retrospective study was performed during 2011–2019 at a Tertiary Oncology Hospital, in patients submitted to mastectomy, and LD was necessary for chest wall closure. Tumor characteristics, resected area, surgical complications, and recurrence were evaluated. **Results:** During this period, 22 patients underwent mastectomy associated with the use of LD. Given the indication, 10 were after neoadjuvant chemotherapy, 10 aimed at locoregional control in the presence of recurrence or metastasis, and 2 aimed at treatment. The majority of tumors were triple-negative (n=10) and luminal HER+ (n=5). Eight of the 14 patients undergoing chemotherapy experienced disease progression during treatment. The intention of the surgery was hygienic (n=9), curative (n=7), or palliative, aiming at locoregional control (n=6). The main complications were dehiscence (n=7); flap necrosis (n=6), requiring debridement and suturing; and back seroma (n=4). Surgery allowed local control in 90.9% (20/22) of patients. We observed eight locoregional recurrences, two of which were local. The average follow-up was 21.1 months. During the follow-up period, 16 patients died, with actuarial survival at 24 and 60 months being 36.4% and 22.7%, respectively. **Conclusion:** The LD is a safe flap, easy to construct, and useful in primary synthesis after extensive post-mastectomy resection. It presented a high complication rate, but with a simple and effective resolution, allowing a high local control rate, in patients with biological tumors and an unfavorable prognosis.

Keywords: breast cancer; locally advanced breast cancer; mastectomy; latissimus dorsi; chest wall defects.

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Cosmetic perception after breast-conserving surgery and quality of life: is there a correlation?

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Objective: Breast-conserving surgery (BCS), compared with mastectomy, guarantees equivalent local control and survival, with lower morbidity and higher quality of life (QOL). However, the cosmetic result (CR) of this surgery can be unsatisfactory and influence the survivor's QOL. This issue exacerbates when the patient reports dissatisfaction despite good results determined by healthcare professionals and/or objective methods. Thus, it is necessary to understand the impact of CR on QOL, as well as potential influencing factors. **Methodology:** A cross-sectional, prospective study (ethical approval and FAPESP) was conducted, including patients undergoing BCS. Patients completed the EORTC-C30, QLQ-BR23, and BCTOS questionnaires, performed self-assessment of breast cosmetics, and had photographs taken. The photographs were analyzed using BCCT.core software. For categorical variables, frequencies were calculated, and for numerical variables, mean and standard deviation were determined. The results of BCCT.core were compared with patient self-assessment, analyzing four groups: satisfied, very satisfied, true-dissatisfied, and false-dissatisfied. Kappa was used to assess agreement between categorical variables, and Student t and Mann-Whitney tests were employed to evaluate the relationship between QOL and CR. ANOVA and Bonferroni adjustment was used to compare groups. **Results:** A total of 300 patients were evaluated, 298 completed self-assessment of their breasts (76.8% satisfactory result and 23.2% unsatisfactory) and 297 had BCCT.core evaluation (29.9% satisfactory result and 70.1% unsatisfactory), with a kappa of 0.095 (p=0.01). In self-assessment, patients with unsatisfactory CR showed worse QOL scores in 17 items. Under software analysis, this relationship did not have the same proportion, with unsatisfied patients showing worse scores in only four items. In falsely dissatisfied patients (satisfactory result by software and unsatisfactory self-assessment), higher scores of pain and worse functionality were found on the treated side. **Conclusion:** Unsatisfactory CRs were associated with worse QOL scores, a fact that may be linked to other aspects such as breast pain and functionality.

Keywords: breast cancer; breast-conserving surgery; breast cosmesis; quality of life; cosmetic results.

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Relationship between tumor-associated macrophages in the tumor microenvironment as prognostic indicators in breast neoplasms

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Objective: This study aimed to correlate the presence of tumor-associated macrophages (TAMs) with clinicopathologic characteristics in 82 cases of breast cancer and assess their impact on tumours as possible prognostic markers.

Methodology: Cases were selected among the records of anatomopathological examinations carried out at a reference center for cancer treatment. The inclusion criteria were histopathological diagnosis of invasive ductal carcinoma, immunohistochemical profile, clinicopathologic data available in the records, clinical follow-up for 5 years, and enough tumour tissue embedded in paraffin blocks to perform immunohistochemical analyses. For the statistical analyses, the cases were classified following a semiquantitative assessment of cell tagging as low infiltration or high infiltration and according to the mean value. **Results:** High levels of TAMs (CD68+) were significantly correlated with younger women, distant metastases, more advanced cancer staging, estrogen or progesterone receptors-negative, and triple-negative breast cancer (TNBC). The survival rate in cases of breast cancer with higher TAM infiltrate decreased, corroborating previous results. The number of CD68+ cells was a strong independent prognostic factor. **Conclusion:** Elevated levels of TAMs (CD68+) showed significant correlations with younger age groups, distant metastases, advanced cancer staging, negativity for estrogen or progesterone receptors, and TNBC. Survival rates were lower in breast cancer cases with increased TAM infiltration, consistent with earlier findings. The quantity of CD68+ cells emerged as a robust independent prognostic indicator.

Keywords: triple-negative breast neoplasms; macrophages; biomarkers; tumor; prognosis.

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Impact of surgical treatment on shoulder joint complex and muscle strength of women undergoing breast cancer treatment

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Objective: This study aimed to evaluate the range of motion (ROM), muscle strength, and functional performance of the shoulder joint complex (SJC) of women with breast cancer undergoing surgical treatment, in two moments, before and after surgery. **Methodology:** The study included 11 volunteers (age 53.7 ± 10.8 years; body mass 73.1 ± 17.1 kg; height 1.55 ± 0.06 m; BMI 30.4 ± 6.3 kg/m²) recruited at the Advanced Breast Diagnostic Center (CORA)/Universidade Federal de Goiás. The volunteers were evaluated in the preoperative moment (0–8 days before) and in the postoperative moment (30–43 days after). ROM was assessed using the Clinometer application, muscle strength was assessed using the hand-grip strength (HGS) test, and functional performance was assessed using the arm, shoulder, and hand dysfunction questionnaire (DASH). **Results:** There was no interaction between the side and time factors and the effect of the side factor for HGS ($p=0.80$ and $p=0.41$, respectively) and ROM on abduction shoulder movements ($p=0.45$ in both), flexion ($p=0.92$ and $p=0.54$, respectively), 0° abduction lateral rotation ($p=0.28$ and $p=0.14$, respectively), 90° abduction lateral rotation ($p=0.39$ and $p=0.15$, respectively), and 90° medial rotation of abduction ($p=0.06$ and $p=0.81$, respectively). There was also no effect of the time factor for HGS ($p=0.56$) and ROM on shoulder movements of lateral rotation 0° abduction ($p=0.29$), lateral rotation 90° abduction ($p=0.09$), and medial rotation 90° abduction ($p=0.94$). However, there was a reduction in abduction ROM ($p=0.002$) and shoulder flexion ROM ($p=0.002$) after surgery on both sides. In addition, there was a reduction in the scores on shoulder functional performance after surgery ($p=0.005$). **Conclusion:** Abduction and flexion of the shoulder were affected after surgery, in addition to a reduction in the scores on the functional performance of the shoulder.

Keywords: muscle strength; breast cancer treatment; surgery.

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Analysis of malignancy rates of percutaneous biopsy in lymph nodes of breast cancer patients

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Objective: This study aimed to analyze the inconclusive rates of fine-needle aspiration cytology (FNA) and core needle biopsy (CORE) performed in suspicious lymph nodes for breast cancer metastasis according to the anatomical location of biopsies and the type of needle used, verifying which technique was preferred. **Methodology:** A retrospective study was conducted by evaluating the database of patients treated in a public hospital in São Paulo, Brazil. Women submitted to ultrasound-guided percutaneous biopsy of lymph nodes from May 2015 to November 2019 were included in the study. The data were analyzed using IBM-SPSS version 27 and Microsoft EXCEL version 2010. **Results:** A total of 499 biopsies were performed, and the mean age of the women was 54.2 years (SD±11.9) in the CORE group and 53.4 years (SD±11.8) in the FNA group (p=0.619). According to the anatomical location, 385 were axillary (77.2%), 62 were supraclavicular (12.4%), 48 were cervical (9.6%), and 4 were infraclavicular (0.8%). Regarding the type of needle, 393 were CORE (78.8%) and 106 were FNA (21.2%). When analyzing the results of the FNA, 38 (35.8%) did not present enough material, 31 (29.2%) were positive, 32 (30.2%) were negative, and 5 (4.8%) showed atypical cells. Among the 393 CORE performed, 255 (64.9%) were positive, 132 (33.6%) were negative, 1 (0.3%) showed atypical cells, and 5 (1.3%) had no representative material. No complications were reported after the procedures. **Conclusion:** CORE was the preferred diagnostic technique in our center, being considered a feasible procedure to evaluate lymph nodes in different sites and with low rates of inconclusive results by insufficient material. In the future, studies evaluating indirect costs may confirm the feasibility of CORE in patients with suspicious lymph nodes in terms of obtaining greater agility and resolute conduct in the public healthcare system.

Keywords: image-guided biopsy; lymphatic metastasis; breast pathology; core needle biopsy.

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Comprehensive analysis of TWIST1 in breast cancer and other carcinomas: an association with prognosis and tumor microenvironment

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Objective: Metastasis is the main cause of death in patients with carcinomas. This process depends on a phenotypic alteration known as epithelial–mesenchymal transition (EMT), regulated by transcription factors (TFs), including TWIST1, whose increased levels have been described in several carcinomas, including breast cancer. However, a comprehensive analysis of its expression to elucidate its predictive value still needs to be performed. This study aimed to understand the prognostic value of TWIST1 expression and its biological relevance for tumor microenvironment (TME) in breast cancer and other carcinomas. **Methodology:** Initially, we conducted Kaplan-Meier analyses using patient data from TCGA of breast cancer (BRCA) and their PAM50 intrinsic subtypes, as well as the other types of carcinomas. For those groups whose TWIST1 levels were associated with a poor prognosis, we conducted the deconvolution analyses using the XCELL algorithm followed by Spearman correlation analysis ($p < 0.05$) between TWIST1 levels and estimation of TME infiltrating-cell types. **Results:** Survival analysis showed that high expression of TWIST1 is associated with poor prognosis in the Luminal B breast cancer subtype (BRCA-LumB; $p = 0.0127$), HER2 breast cancer subtype (BRCA-Her2; $p = 0.022$), clear cell renal cell carcinoma (KIRC-ClearCell; $p = 0.0004$), kidney renal papillary cell carcinoma (KIRP-Papillary; $p = 0.0002$), lung adenocarcinoma (LUAD-AdenoNOS; $p = 0.016$), stomach adenocarcinoma diffuse (STAD-Diffuse $p = 0.0061$), and intestinal (STAD-Intestinal; $p = 0.0013$). In addition, TWIST1 levels revealed a clear correlation with TME-infiltrating cells, demonstrating a positive correlation with cancer-associated fibroblasts (CAFs) and a negative correlation with plasma B cells in the analyzed groups. **Conclusion:** Our findings elucidated the predictive role of TWIST1 in breast cancer and other cancer types, which provided new insights exploring the possible regulatory mechanisms of TWIST1 on the TME, suggesting this TF as a potential target to develop novel diagnostic and therapeutic strategies.

Keywords: TWIST1; tumor microenvironment; prognosis, survival.

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Effects of COVID-19 on breast cancer in public healthcare system in Brazil (2018–2022)

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Objective: This study aimed to evaluate COVID-19 effects on breast cancer screening and clinical stage at diagnosis in patients of 50–69 years of age receiving care within the public healthcare system (SUS) in 2018–2022 in Brazil. **Methodology:** This ecological study analyzes the absolute and relative frequency of screening and staging, using a secondary database of SUS sources: SUS Network Outpatient Data System and Oncology Brazil Panel. **Results:** There was a decrease in mammographic coverage in 2020 (20%) and 2021 (26.7%) compared with 2018 (34.8%) and 2019 (33.9%). For 2022, we observed an increase in the percentage coverage rate (32.7%), which was still lower than in the years before the pandemic. The number of reported cases decreased by 31.5% in 2020–2021 compared with 2018–2019, but there was an increase of 21.2% compared with 2022. There was a 4% increase in the proportion of stage III/IV cases in 2020–2022 compared with 2018–2019, now surpassing the number of cases of early-stage breast cancer. **Conclusion:** COVID-19 led to a reduction in breast cancer screening and an expressive increase in advanced tumors in users of the public healthcare network. Urgent interventions in public policies are required as the negative effects of the pandemic on the diagnosis/treatment of breast cancer.

Keywords: breast cancer; COVID-19; Brazil; breast cancer screening; clinical staging of breast cancer.

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Mammography in the Federal District: analysis of suspected and confirmed malignancy cases between 2018 and 2023

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Objective: This study aimed to evaluate information related to mammograms classified as BI-RADS 4–6 in the Federal District over the past 5 years. **Methodology:** This is a retrospective study of descriptive and quantitative nature, utilizing secondary data collected from the Cancer Information System (SISCAN), available on the DATASUS electronic platform. The situation in the Federal District between 2018 and 2023 was analyzed, incorporating the following variables: quantity of mammograms, clinical indication, age range, type of screening, prior mammography, whether a physical examination had been previously conducted, BI-RADS classification, and the interval between request, collection, and results.

Results: During the analyzed period, 2,806 mammograms resulting in BI-RADS 4–6 were performed, with the vast majority indicated for screening (76.8%) and predominantly in patients aged 50–60 years (37.4%). Regarding screening mammograms, a large proportion was allocated to the target population (81.7%), with the remainder for the high-risk population (11.5%) and patients already treated for breast cancer (6.6%). The majority of patients had previously undergone mammography (71.8%), and it was also predominant to perform a physical examination of the breasts before the examination was requested (90.5%). Category 4 of the BI-RADS classification was the most prevalent among the three (73.4%). The time between request and examination was also verified, with more than half of the mammograms performed within 10 days (60.6%), and the time between examination and result, with almost half also being released within 10 days (49.3%).

Conclusion: The commendable performance in both access to and execution of mammograms as a preventive strategy in the Federal District is noteworthy. Mammography proves to be an excellent screening method, demonstrating its usefulness for early detection and appropriate follow-up of breast cancer.

Keywords: breast cancer; mammography; screening.

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Comparison of clinical staging and mammographic detection in women aged 40–49 years and 50–69 years in public health care system

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Objective: The aim of this study was to compare breast cancer screening and clinical stage at diagnosis in patients aged 40–49 years and 50–69 years treated in the public health system (SUS) in Brazil in the period 2013–2022. **Methodology:** This ecological study analyzed the absolute and relative frequency of staging and used Poisson regression to analyze trends in screening. A secondary database from SUS sources was used: SUS Network Outpatient Data System, Oncology Brazil Panel, Brazilian Institute of Geography and Statistics, and National Agency for Supplementary Healthcare. **Results:** When analyzing the clinical staging of breast cancer in the SUS, an increase in the rates of advanced stage (III and IV) is observed in both age groups [40–49 and 50–69 years, with a higher prevalence in the younger group (59%) than in the 50–69 years group (52%)] in 2022. In the 40–49 age group, a reduction trend in screening can be observed from 2013 to 2020 (APC -9.57, $p < 0.05$), followed by stability in the years 2020–2023. In the 50–69 age group, the proportion of mammographic coverage remained stable. **Conclusion:** In view of the available evidence, it is necessary to expand access to mammography screening for women aged 40–49 years in Brazil. This includes implementing public policies that enable testing under the SUS, raising women's awareness of the importance of early detection, and combating misinformation.

Keywords: breast cancer; Brazil; breast cancer screening; clinical staging of breast cancer; Unified Health System.

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Muscle strength related to quality of life in breast cancer patients and survivors

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Objective: The objective of this study was to evaluate the relationship between muscle strength and quality of life in breast cancer patients and survivors who practice physical exercise vs those who do not. **Methodology:** We conducted searches using the terms “Muscle Strength,” “Breast Cancer,” and “Resistance” in the following databases: MEDLINE (by PubMed), Embase (by OvidSP), and Karger. We also searched ClinicalTrials.gov and the WHO International Clinical Trials Registry Platform. This systematic review of the literature was performed using PRISMA and Cochrane Handbook for the Scopus, and six articles were selected for qualitative analysis. **Results:** The majority of studies found the effectiveness of resistance training (RT) in breast cancer survivors during anticancer treatment, with a positive impact on reducing fatigue levels, less loss of muscle strength, and a lower incidence of joint dysfunction, especially when associated with kinesiotaping (KT). Some of the studies listed showed a higher quality of life post-treatment in the group that practiced physical activity, suggesting that RT is superior in post-therapeutic anti-cancer rehabilitation, compared with sedentary patients. However, none of the studies found consistent correlations between strength exercise and reduced BMD in breast cancer survivors. Another study suggests that RT can reduce chronic inflammation, with the potential to prevent cancer recurrence, but more robust evidence is still lacking. **Conclusion:** Breast cancer patients face significant challenges related to muscle strength loss and fatigue during and after treatment. The implementation of an exercise protocol emphasizing resistance training has proven beneficial. The inclusion of KT therapy also shows the potential to improve functional performance. When developing treatment strategies for breast cancer patients, it is essential to consider resistance training and possibly KT therapy as integral parts of the care plan to optimize physical outcomes and quality of life for these patients.

Keywords: breast cancer; muscle strength; quality of life.

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Valvulopathy due to mediastinal radiation: a diagnosis little thought of in radiotherapy for breast cancer, a systematic review

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Objective: This study aimed to review the possibility of diagnosing valvular heart disease due to mediastinal radiation, in radiotherapy for breast cancer, as it is little considered and an insidious diagnosis. Due to the reason that radiotherapy is an important way of treatment in patients with not only breast cancer but also lymphomas. **Methodology:** We comprehensively searched the PubMed database for studies and trials that included mediastinum radiotherapy for breast cancer and valvulopathy in their papers. Our systematic review followed the PRISMA statement guidelines. **Results:** Cardiac complications include coronary artery stenosis, pericardial disease, cardiomyopathy, conduction abnormalities, and, mainly, valve disease, with significant prevalence in survivors of Hodgkin's lymphoma and breast cancer. Asymptomatic radiation-associated valve disease is usually diagnosed more than 10 years after mediastinal irradiation. Understanding the pathophysiological mechanisms underlying radiation-induced cardiovascular damage is crucial for early diagnosis and effective treatment of subclinical cardiac abnormalities, as valve disease begins with mild asymptomatic valve thickening and progresses to severe valve fibrosis with hemodynamic compromise that requires surgical intervention. Although evidence-based specific cardiac screening approaches are lacking, prevention remains the best way to treat radiation-induced cardiotoxicity. Modern radiotherapy techniques, such as three-dimensional planning and the use of subcarinal blocks, are essential to minimize the volume of the irradiated heart and reduce the risk of cardiovascular complications. **Conclusion:** It is clear that radiotherapy plays an indisputable role in the treatment of breast cancer; however, its application may be associated with serious cardiovascular complications, especially when the heart is directly exposed to radiation. Dose prediction models are being developed to predict the risk of future heart valve disease and new radiation techniques are being developed to reduce radiation dose to the heart, but continued surveillance and long-term cardiac follow-up will still be necessary to ensure quality. life expectancy of patients undergoing radiotherapy for breast cancer.

Keywords: breast cancer; radiotherapy; valvulopathy; oncology.

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Is it possible that there is a relationship between meningioma and the appearance of breast cancer? A systematic review

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Objective: This study aimed to verify whether there is a relationship between the appearance of breast cancer in patients previously diagnosed with meningioma. If this relationship is found, this research will also aim to encourage other research to understand the reason for this relationship. **Methodology:** We comprehensively searched the PubMed database for case reports and case series that included the incidence of meningioma and patients with the diagnosis of breast cancer in their papers. Our systematic review followed the PRISMA statement guidelines. **Results:** There are more than 49 reported and dated cases of the association between meningioma and breast cancer. Therefore, it is clear that there is an implicit association between meningiomas and breast carcinoma when we look at these data. Many of these cases occur during pregnancy, which can lead to a hormonal hypothesis in their genesis. In a bidirectional study, 795,000 patients were observed who had follow-up for years, in which the standardized incidence ratio was 1.27 for meningioma after a case of breast cancer; in 28,000 patients, the standardized incidence ratio was 1.32 for breast cancer after meningioma. However, in a mono-institutionalized study, 12,330 patients were analyzed and only 33 were observed to have meningioma, presenting a low relational value. **Conclusion:** It was observed that there is an inconsistency between the numerous clinical cases found and the research carried out, so there is no way to conclude the correlation between the tumors, but we cannot discard these data. Therefore, further research must be carried out so that we can further improve screening against these tumors; however, from this review, it is now possible to think of meningioma as a differential diagnosis for neurological symptoms in patients with breast cancer or a previous history.

Keywords: breast cancer; meningioma; relation.

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Evaluation of HER2-low incidence in the clinical oncology service of Hospital das Clínicas da Universidade Federal de Goiás

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Objective: The objective of this study was to determine the incidence and epidemiology of patients with Human Epidermal Growth Factor Receptor-type 2 (HER2-low) breast cancer in the oncology service of the HC-UFG from March 2022 to February 2023. **Methodology:** This is an observational and cross-sectional study, which included patients diagnosed with invasive breast cancer and excluded those with immunohistochemistry HER2 3+, HER2 0, or HER2 2+ with positive fluorescent *in situ* hybridization (FISH) by immunohistochemistry and those under 18 years old. **Results:** HER2-low tumors at HC-UFG are predominantly luminal (82%). Sixteen patients (11.2%) from the HER2-low group were eligible for analysis and epidemiological characterization, concluding that the average age was 60.2 years, the majority were female (93.7%), had a performance status of 0 at diagnosis (75%), and had a ductal histological subtype (93.7%). Regarding risk factors, 75% had a positive family history of cancer, 37.5% were smokers, and 43.7% were obese, with none being alcohol consumers. Some expression of HER2 was identified in a total of 17 immunohistochemistry tests, thereby classified as HER2-low (14.08%). This proportion of patients, previously classified as triple-negative or luminal, received a new classification, making them also eligible for new drugs available for this specific group. **Conclusion:** From February 2022 to March 2023, HER2-low incidence in breast cancer patients at HC-UFG corresponded to 14.08%. A higher frequency was observed in patients with a positive family history of cancer.

Keywords: breast cancer; HER2-low.

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Analysis of radiological findings in treated breast cancer patients who had mammography in the state of Tocantins in 2023

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Objective: This study aimed to evaluate the results obtained in mammography in 2023 in women above 30 years old who previously had breast cancer treatment in the state of Tocantins. **Methodology:** This is a quantitative and comparative study of mammography results in treated breast cancer patients. It reunited data from the Cancer Information System (SISCAN/DATASUS) using biological sex, time, and location of the exam as filters, evaluating new radiological findings. **Results:** In 2023, 229 mammographies were done in women above 30 years of age who previously had breast cancer. It was analyzed according to the Breast Imaging Reporting and Data System (BI-RADS). It was observed an expressive number of BI-RADS 2 with a prevalence of 86.89%, followed by 8.73% represented by BI-RADS 0 and 3.05% Bi-RADS 4. The categories BI-RADS 1, 3, and 5 presented the same percentage with only 0.43%. The age group with the highest number of radiological findings was between 60 and 64 years old, which constitutes 46 exams of the total studied; this number had 37 classified as Bi-RADS 2, 3 as BI-RADS 4, and 1 as BI-RADS 5. The last one was the only finding of the sample that is in this category, which represents 1.74% of the sample with suspect lesions. **Conclusion:** Screening the more considered risk population than usual is necessary in the face of the current prevalence of radiological findings. However, data analysis shows a bigger concern among women between 60 and 64 years old, as there was a recurrence of highly suspect findings only in this age group in 2023.

Keywords: breast neoplasms; early diagnosis; mammography; neoplasm staging; recurrence.

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Breast cancer treatment delays in Brazil: an ecological study from 2017 to 2022

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Objective: This study aimed to evaluate the delay from diagnosis to treatment initiation for breast cancer in Brazil between 2017 and 2022, investigating the relationship between treatment delay, type of treatment, and cancer stage, alongside annual trends in the initiation times of treatment. **Methodology:** Utilizing a descriptive observational design, the research analyzed data from the Brazilian Unified Health System's Oncology Panel (DATASUS). The study encompassed female breast cancer cases across Brazil, focusing on the interval to treatment start, cancer stage, and treatment type. Statistical analyses included chi-square tests and joinpoint regression to discern temporal trends, measuring changes through annual percent change (APC). **Results:** From 237,073 cases identified, 24.4% began treatment within 30 days, whereas 37.2% experienced delays beyond 91 days. Radiotherapy showed the longest wait times, with notable delays across all treatment types ($p < 0.001$). Early-stage patients had longer wait times compared with advanced stages ($p < 0.001$). The trend analysis indicated a decrease in patients starting treatment after more than 121 days, but a concerning reduction in those commencing within 30 days (APC -1.15), and an increase in delays of 61–91 days (APC 4.03). **Conclusion:** The majority of Brazilian women faced substantial treatment initiation delays, with the most pronounced in radiotherapy and among early-stage patients. The trend analysis highlighted an increase in treatment delays, suggesting an urgent need to address these issues to improve the timeliness of breast cancer care in Brazil.

Keywords: breast cancer; treatment delay; Brazil; oncology trends; time to treatment.

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Impact of the genomic signature of 70 genes for breast cancer in the public system and in supplementary health care in a country of medium socioeconomic development

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Objective: This study aimed to evaluate the financial viability of using the MammaPrint™ (MP) genetic signature in a public and private system in a country with a medium socioeconomic development index. **Methodology:** A pharmacoeconomic trial with a cost-benefit analysis evaluating the reduction in costs of chemotherapy, support drugs, and materials used during chemotherapy infusion in high-risk hormone receptor-positive (HR+) breast cancer patients submitted to analysis using the MP™ genetic signature. **Results:** The value of using MP in the Unified Health System (SUS) would bring an additional cost of US\$ 1334.56 per patient in the over-50-year age group. In private medicine, the use of MP in the same population would result in cost savings ranging from US\$ 2422.53 to US\$ 9989.95 per patient. **Conclusion:** The use of MP in RH+ breast cancer patients with high clinical risk and low genomic risk in Brazil leads to significant savings in resources when applied to supplementary healthcare. In the SUS, reducing the costs of MP for large-scale use could make its application viable. These values need to be re-evaluated in each institution, using the methodology applied in the trial, adjusting according to costs, to obtain a result that reflects its reality.

Keywords: breast cancer; genomic profile; genetic test; pharmacoeconomics.

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Evidence-based breast cancer recommendations guide for empowering asymptomatic women

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Objective: This study aimed to carry out a systematic review of the literature that pointed to studies that used psychoeducation resources in health for asymptomatic women as a way to face the barriers in the prevention and early detection of breast cancer and to build an evidence-based guide of recommendations for health professionals to empower asymptomatic women with breast cancer, to contribute to disease control programs in Brazil. **Methodology:** A systematic literature review was carried out from September to December 2021 with a search strategy process used in the databases. The mapping and survey were built by PRISMA2020. **Results:** A total of 146 studies were identified; 35 were excluded; 111 were evaluated by title/abstract; 23 were for descriptive analysis and 09 for qualitative analysis. (1) Descriptive analysis categories: author, year/publication, country, impact factor, objective, design, number, age range, program, location, protocol, actions, and results. (2) Qualitative analysis – The Checklist STROBE was the instrument that served to confirm and refute the observations previously made in the included studies. Training through psychoeducational activities in health is resources for empowerment, expansion of knowledge, and autonomy for health promotion. Health education can be the empowering resource that asymptomatic women need to demystify the disease. Constructivist sharing and accessible vocabulary were an important analysis factor. From health literacy, the Guide of Recommendations on Breast Cancer for Empowering Asymptomatic Women aims to guide health professionals as facilitators to change the behavior of asymptomatic women for breast cancer into healthy habits and actions, in the construction of autonomy, in personal and social resources, in the improvement of the quality of life. **Conclusion:** It is expected that individual and collective dialogues will be expanded, and that psycho-oncology, in an innovative and critical way, will help asymptomatic women in a transformation of themselves and many others for the prevention and early detection of the disease and collaborate with breast cancer control programs in Brazil.

Keywords: systematic review; empowerment; breast cancer; psycho-oncology; health promotion.

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The expression of TAM and EPHA2 genes in breast cancer

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Objective: Receptor tyrosine kinases (RTKs) are involved in cell growth, motility, and differentiation. Deregulation of RTK signaling is associated with tumor development and therapy resistance. Potential RTKs such as TAM (TYRO3, AXL, MERTK), RON, EPH, and MET have been evaluated in many cancers such as lung, prostate, and colorectal, but less is known in breast tumors. In this study, 51 luminal breast cancer tissue and 8 triple-negative breast cancer (TNBC) subtypes were evaluated by qPfor the expression of TAM, RON, EPHA2, and MET genes. **Methodology:** The study was carried out with women assisted at Hospital Barão de Lucena – Recife (PE), enrolling 59 women, aged from 32 to 100 years, divided into two groups: 51 patients diagnosed with luminal breast cancer and 8 patients diagnosed with TNBC. This study was approved by the Research Ethics Committee of the Health Sciences Center of the Federal University of Pernambuco (CAAE: 47869315 0 00005208). **Results:** Among the 59 patients, 21 had luminal A-like, 30 had lumina B-like, and 8 had TNBC. The median age at diagnosis of breast cancer was 56 years, and patients were divided into four groups: 10.34% of patients 30–40 years; 22.41% of patients 41–50 years; 32.75% of patients 51–60 years, and 34.4% of patients over 60 years. Parity was reported by 89.83%, smoking habit was reported by 22.03%, and obesity was observed in 37.29% of patients. Luminal breast cancer was the most prevalent subtype, accounting for 86.44% of patients, of which 58.82% were luminal B-like. Regarding tumor staging, 11.86% of tumors were in stage I, 42.37% of tumors were in stage II, and 44.06% of tumors were in stage III. **Conclusion:** The TAM receptors show potential for targeting therapy once the expression of the three genes coding for the trimer is related to breast cancer subtypes and influenced by the patient's aging and habits, besides, the crosstalk between TAM and other RTKs like MET and EPH receptors.

Keywords: receptors tyrosine kinase; TNBC tumors; luminal patients; resistance; gene expression; target therapy.

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Epidemiological analysis of the pandemic and post-pandemic period in the diagnosis of breast cancer in north of Brazil

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Objective: This study aimed to discuss Brazilian statistical data after the end of the COVID-19 pandemic in the diagnosis of breast cancer in the screening age range recommended by the Ministry of Health (MS) 50–69 years, served in the states of the north of Brazil. **Methodology:** An epidemiological, descriptive, quantitative, and comparative study was carried out from January 2020 to December 2023 based on data collected from the Cancer Information System (SISCAN). The options that were chosen were as follows: “mammogram by patients,” “Brazil by region”; “period: 2020 to 2023”; “female” “age range: 50 to 69 years”; and “BI-RADS 4 and 5 mammography report.” The number of mammograms suggestive of breast cancer between the period of 2020 and 2021 (pandemic years) and 2022 and 2023 (post-pandemic years) was compared, analyzing the states: Amazonas, Pará, Acre, Roraima, Rondônia, Amapá, and Tocantins. **Results:** Throughout 4 years among the 7 selected states, the total number of mammograms suggestive of breast cancer was 2557. Most states saw an increase in the number of breast cancer diagnoses, except Pará (-25%) and Amapá (-57%), comparing 2020 and 2021. Overall, the states continued to see an increase in the number of diagnoses, except Acre (-27%) and Amapá (-95%), in the years 2021 and 2022. Finally, all states increased diagnoses between 2022 and 2023, except Acre (-20%), and Rondônia (-3%). **Conclusion:** Therefore, given the results obtained in this work, it is clear the importance of producing new qualitative research on the topic, in a way that the relationships between the pandemic and post-pandemic period of breast cancer in Brazil are understood, as there are not many discussions about whether the tracking that occurred during the period was satisfying or not. With that being said, it is expected that this analysis will encourage news searches so that the question gets fully understood.

Keywords: COVID-19; pandemics; mammogram; breast neoplasms.

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Epidemiological analysis of the impact of the COVID-19 pandemic on breast cancer screening in the north of Brazil

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Objective: This study aimed to discuss Brazilian statistical data after the end of the COVID-19 pandemic in the diagnosis of breast cancer in the screening age range recommended by the Ministry of Health 50–69 years, served in the states of the north of Brazil. **Methodology:** An epidemiological, descriptive, quantitative, and comparative study carried out between January 2018 and December 2021 using data collected in the Cancer Information System (SISCAN) as a basis. The options that were chosen were as follows: “mammogram by patients,” “Brazil by region”; “women”; “mography screening”; “target population”; and “mammography report all categories.” The history of mammograms performed in the period 2018 and 2019 (pre-pandemic years) and in the period 2020 and 2021 (pandemic years) was compared, analyzing the states: Rondônia, Acre, Roraima, Pará, Amazonas, Amapá, and Tocantins. **Results:** The total number of mammograms performed for breast cancer screening performed in the 4 years and 7 selected states was 375,170. Comparing the period between 2018 and 2019, all states showed an increase in the number of screenings. When comparing 2019 and 2020, only the states of Amapá (+55%) and Acre (+52%) increased the tracking rate. Finally, all states increased the number of screenings comparing 2020 and 2021, with the exception of Amapá (-92%). **Conclusion:** Therefore, a bimodal pattern of breast cancer screening is noted, as the number of mammograms decreased in 2020, compared with the years 2018, 2019, and 2021. To sum up, it is assumed that the result presented due to the period of Lockdown and social distancing present during the pandemic.

Keywords: COVID-19; pandemics; mammogram; breast neoplasms.

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The growth of oncoplastic breast surgery in northern Peru. Experience of tertiary institute

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Objective: The aim of this study was to describe the oncoplastic management of breast cancer in northern Peru.

Methodology: We analyzed 26 patients with diagnosis of breast cancer at the “Instituto Regional de Enfermedades Neoplásicas del Norte del Peru” between 2012 and 2020. Our institute oversees oncology patients from the northwestern of Peru. Clinical features such as the timing of the disease and age were collected. As well data related to the neoplasm included tumor location, size, pathology, clinical stage, as well as oncoplastic techniques, and management of axilla disease. Categorical and continuous variables were expressed as percentages and means, respectively. **Results:** A total of 26 patients were included in this research. The mean age was 57 years, with a mean time of disease of 9 months. The mean tumor size was 2 cm. Most of the tumors were found in the upper outer quadrant and the right breast as well. The main histopathology was invasive ductal carcinoma. Notably, 62% of the molecular profiles were luminal followed by 19% luminal with overexpressed HER2. Clinical stage II was found in half of the patients. The main oncoplastic technique was a lateral pattern followed by a round block. For axillary disease management, we used mainly sentinel node lymph dissection (46%). The overall survival was 102 months. There were no differences in clinical stage or molecular pattern over overall survival. **Conclusion:** The oncoplastic breast techniques are reliable management, especially lateral patterns mostly for lower clinical stages.

Keywords: oncoplastic breast surgery; Peru.

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Experience in care, treatment, and monitoring of women's neoplasms from an oncologic team in Goiás

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Objective: This study aimed to comprehend and acquire data from the outpatient consultations, surgeries, follow-up consultations, and adverse event care performed in the year 2022. **Methodology:** Data were collected from digital medical records of gynecology of a breast cancer team from the HAJ. Ambulatorial data were divided by month, while surgeries and hospital stays were divided by the international classification of diseases. **Results:** Over the period of January and December of 2022, 24,396 outpatient consultations were performed, with an average of 2033 per month. The follow-up consultations represent most of the demand (18,326), followed by chemotherapy consultation (3,281) as first-time consulting represents 2,373 cases. The admissions for surgery were 1,780 during 2022, as 1,657 were elective and diagnostic surgeries. Most of the surgeries intended to treat breast cancer with 488 procedures, followed by uterine cervix cancer (156 cases), ovarian cancer (143 cases), and endometrial cancer (113 cases). Most diagnostic surgeries were performed for cervical cancer, with 241 surgeries, followed by ovarian cancer (172) and breast cancer (165). The admissions due to adverse events resulted in emergency surgery in 123 cases, representing 6.9% of surgeries of that year. The hospitalizations due to clinical events were 123, and most of them related to cervical cancer. The deaths by breast cancer represented 81 (38.8%) with a total of 209 deaths, followed by cervical cancer (71 deaths) and ovarian cancer (42 deaths). Most of the deaths occurred due to clinical events. **Conclusion:** The HAJ represents the only institution classified as a high-complexity cancer center in Goiás. The gynecological and breast cancer team provides support to that population and those statistics numbers are crucial to improving treatment and understanding of these neoplasms in regional, national, and global contexts.

Keywords: genital neoplasms; female; breast neoplasms; uterine cervical neoplasms; health statistics; endometrial neoplasms.

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The usage of artificial intelligence in the early breast cancer detection

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Objective: This literature review aimed to evaluate the effectiveness of using artificial intelligence in breast cancer screening and its impact on diagnostic approaches for early-stage detection among women. **Methodology:** This is a systematic literature review that analyzed data from three databases: PubMed, SciELO, and MEDLINE. The search terms used were “breast cancer,” “artificial intelligence” (AI), and “diagnostic” to select articles and studies published between 2019 and 2023. The results were analyzed to draw a conclusion about the proposal of this systematic review. **Results:** The literature review provides strong evidence for the use of AI in the early detection of breast cancer. Computer-assisted detection systems, specifically the modern “CAD 2.0” based on optimized learning algorithms, have increased the percentage of malignancy detection and reduced false positives. Additionally, breast tomosynthesis and radiometric techniques have shown promising results in the early tracking and prognosis of breast cancer. These advances demonstrate the potential of AI to improve the precision and effectiveness of breast cancer tracking, contributing positively to clinical practice and enabling early and more accurate interventions for breast cancer patients. **Conclusion:** Through thorough examination and analysis of pertinent studies, it is discerned that the integration of AI in breast cancer screening has been a practice spanning several decades, yielding considerable advantages ranging from image generation to outcome prediction. Nonetheless, lingering inquiries persist regarding this technology, encompassing bioethical considerations and the refinement, progression, and management of AI systems. Thus, it is anticipated that, in forthcoming years, AI will progressively increase its role in facilitating the screening process and promoting early detection of breast cancer.

Keywords: artificial intelligence; breast neoplasms; women’s health.

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Immunohistochemical and molecular aspects of phyllodes tumors of the breast and the repercussions on diagnosis and treatment: a scope review

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Objective: The objectives were to highlight the importance of immunohistochemical and molecular markers in the diagnosis, treatment, and prognosis of phyllodes tumors. A total of 424 publications were identified from the database search, and in the end, 39 studies were included in the synthesis. **Methodology:** The methodology of this study is a scoping bibliographic review, using the writers “phyllodes tumor” AND “immunohistochemistry” in the databases PubMed, SciELO, LILACS, Cochrane Library, NIH, Clinical Trials, NICE, and BVSMS. A total of 424 publications were identified from the database search, and in the end, 39 studies were included in the synthesis. **Results:** The results demonstrate that numerous immunohistochemical markers have been studied in an attempt to improve the accuracy in the diagnosis of benign, borderline, and malignant phyllodes tumors, such as p53, Ki67, CD117, EGFR, p16, VEGF, CD34, β -catenin, E-cadherin, B7H3, EZH2, ZEB1/ILK, c-Kit, BIK, p-BIK, CD44, and cancer stem cell markers. The higher expression of E-cadherin, β -catenin, and CD34 corroborates the diagnosis of benign phyllodes tumor, while borderline phyllodes tumor can express B7H3, CD34, c-Kit, and Ki67. An association of histological characteristics, high mitotic index, and expression of Ki67 and p53 in malignant phyllodes tumors was verified. High stromal expression of EZH2 in malignant phyllodes tumors has been reported in cases with lower disease-free survival and overall survival, and BIK and p-BIK proteins have very low expressions in these tumors. **Conclusion:** Extensive surgical removal is consolidated as the gold standard of treatment for phyllodes tumors. However, it is important to highlight that immunohistochemistry is a potential diagnostic tool in the evaluation of phyllodes tumors, along with histopathological characteristics, and in the near future, it may have repercussions and impact on the treatment and prognosis of these tumors.

Keywords: immunohistochemistry; phyllodes tumors; diagnosis; treatment.

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Retrospective analysis of the epidemiological profile of patients submitted to breast reconstruction at a public hospital in the Northeast

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Objective: Breast reconstruction is a right assured by the public health system to patients submitted to mastectomy. However, there are factors that delay the performance of this procedure. To understand the epidemiological profile of women with breast cancer who underwent breast reconstruction in a reference hospital in the state of Pernambuco.

Methodology: This is an observational, retrospective research with an analytical character and descriptive approach. The data were collected through a questionnaire sociodemographic and clinical-surgical history of patients with breast carcinoma and then analyzed by the SPSS software, version 18, with the percentages of the categories evaluated by the chi-square test, considering the significance level of 5%. The comparison of analyses was significant ($p < 0.005$), showing that the profile described is the most frequent in the group of patients evaluated. This search was submitted and approved by the Ethics and Research Committee on Human Beings of Fundação Amaury de Medeiros, CAAE: 42457420.1.0000.5193.

Results: A non-probabilistic sample of 400 records was obtained in 10 years at a tertiary hospital in Recife (PE), most of them with mean ages between 46 and 59 years (45.3%), brown (61.1%), married (79.1%), with education until high school (60.7%), household professionals (45%), non-smokers (84.9%), who do not consume alcohol (94.9%) and had immediate reconstruction after mastectomy (70.3%). A lot of patients used the region flaps (45%) and the second most used type of reconstruction was myocutaneous flaps (23%). The subtype molecular most frequently was luminal (60%). **Conclusion:** The findings support that patients with high educational levels are likely to undergo immediate breast reconstruction, pointing out that the socioeconomic level significantly influences the rates of breast reconstruction after mastectomy or setorectomy.

Keywords: breast cancer treatment; epidemiology; mastectomy; breast cancer; breast.

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Evaluation of quality of life of women breast cancer survivors who received resistance training for 12 months

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Objective: The study aimed to assess the impact of a 12-month resistance training (RT) protocol on the quality of life (QoL) of woman breast cancer (BC) survivors. **Methodology:** This is an experimental study, lasting 12 months and involving 10 women (58.80±6.94 years) BC survivors. QoL was evaluated using the FACT B+4 (Functional Assessment of Cancer Therapy – BC + Arm Subscale) composed of the domains: physical well-being (PWB), social/family well-being (SWB), well-being emotional (EWB), functional well-being (FWB), BC specific aspects (BCS), Trial Outcomes Index (TOI), FACT-B, and FACT-G. To analyze the two dependent measurements (pre- and post-intervention), we used the paired student t-test (parametric data) described as mean and standard error (SE) and the Wilcoxon test (non-parametric) described as median and SE. **Results:** For QoL, there was a significant difference for SWB with an improvement of 6.10 (SE 2.11) points ($t(9)=2.883$, $p=0.018$; $d=1.14$ “large”) and FWB improvement of 7.60 (SE 2.77) points ($t(9)=2.736$, $p=0.023$; $d=0.86$ “large”). As for TOI, FACT-G, and FACT-B, there was a significant increase post-training, with gains of 13.60 (SE 4.02), 17.10 (SE 5.07), and 21.90 (SE 6.31) points, respectively, with significant differences for TOI ($t(9)=3.376$, $p=0.008$; $d=1.06$ “large”), FACT-G ($t(9)=3.372$, $p=0.009$; $d=1.06$ “large”), and FACT-B ($t(9)=3.468$, $p=0.007$; $d=1.09$ “large”). The Wilcoxon test indicated an improvement in BCS after the intervention, with a median of 4.00 (SE 2.14) points ($W=3.500$, $p=0.027$, $rB=0.84$ “large”). **Conclusion:** RT after 12 months of intervention is significantly beneficial in improving the QoL of women BC survivors.

Keywords: resistance training; quality of life; breast cancer; chemotherapy.

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A new navigation aid tool: Instagram as a facilitator of breast health education

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Objective: The purpose of navigation is, therefore, to appropriately direct patients who will need continued care within the health system. In the context of breast cancer patients, this appears to be promising and necessary so that they do not lose follow-up but also maintain continuity in the provision of medical care postponed due to system failures. The key point of navigation is to look for which mechanisms contribute to delays in care, identifying and addressing barriers in the path of care and treatment. **Methodology:** This was an observational, prospective, experimental study with the objective of evaluating Instagram as a facilitating tool for the navigation of patients who were monitored at the mastology outpatient clinic of the Santa Casa de Misericórdia do Recife hospital, Hospital Barão de Lucena, and the Pernambuco Military Police Hospital (HPMPE). Finally, it is worth mentioning that the project was submitted to the Brasil platform under the number (CAAE 74006323.0.0000.5205). **Results:** A total of 105 screening patients were identified as potentially eligible during medical care at the mastology outpatient clinic at the (HBL), the HPMPE, and the Santa Casa de Misericórdia do. Among these, nine patients captured at the Santa Casa de Misericórdia were excluded since, even during the data collection period, that hospital was no longer part of this research due to loss of ties with the researchers. In the HPMPE, a total of 21 patients were eligible, 6 of whom were excluded because they did not meet the inclusion criteria, considering that it was not possible to contact them to apply for the post-test. In the HBL, a total of 76 patients were eligible, 13 of whom were excluded because they did not meet the inclusion criteria: four patients refused to take the post-test, and nine patients were lost to follow-up, as it was not possible to establish contact. **Conclusion:** Through this study, we concluded that the Instagram platform is a useful tool for navigating breast cancer patients, which is capable of significantly reducing barriers.

Keywords: breast cancer; Instagram; epidemiology.

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Half-moon technique: a new option for breast reconstruction of central tumors or tumors with central extension

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Objective: This study aimed to describe and evaluate the indications and results of a new surgical technique for use in the breast-conservative treatment of tumors in the central quadrants or central extension. **Methodology:** This study was approved by the UniFaminas – Muriaé Ethics Committee (CAAE Project 68787623.8.0000.5105, dated 05/03/2023). The new technique, called “half-moon,” consists of creating a circular island of skin in areas close to the central region, in patients undergoing areolar resection. To do this, an island of skin is created from neighboring semicircles created horizontally or vertically. It is indicated for breasts with small and medium volume, absent or small ptosis, aiming to create a central area, with minimal loss of volume and volume projection. The characteristics of the patients were evaluated, as well as the results of this new technique. **Results:** From February 2022 to January 2024, 14 patients underwent the half-moon technique. The median age was 45 years (31–67 years). Given the indication, the majority had small and medium breast volume (11), with absent or grade 1 ptosis (9). In the majority, surgery occurred after neoadjuvant chemotherapy (8), with partial response. Regarding the technique, the surgery was vertical in 11 cases and vertical in 3 cases, being associated with breast explantation and geometric compensation in 2 cases. Of the eight patients who completed the initial treatment, three underwent symmetrization, and five refused symmetrization, considering the acceptable results. **Conclusion:** The half-moon flap constitutes a new safe reconstruction option to be performed in central tumors, with areolar resection being easy to perform and providing acceptable cosmetic results.

Keywords: breast neoplasms; breast-conserving surgery; surgical flap; surgical procedures; operative.

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Angiogenesis, heroine, or villain? The expression and significance of vascular endothelial growth factor when dealing with the prognosis of patients with breast cancer

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Objective: Vascular endothelial growth factor (VEGF) is an important signaling protein that acts in muscle and tissue regeneration and promotes angiogenesis. However, it can help spread the tumor through metastases. Therefore, the objective of this review was to evaluate the expression and significance of VEGF when dealing with the prognosis of patients with breast cancer. **Methodology:** We comprehensively searched the PubMed database for studies and trials that included expression of VEGF and breast cancer prognosis in their papers. Our systematic review followed the PRISMA statement guidelines. **Results:** VEGF is a signaling protein and appears to be an effective direct pro-angiogenic factor that increases vascular permeability and promotes neoangiogenesis, playing a crucial role in the development and progression of vascularization and tumor growth. Furthermore, it stimulates the proliferation and migration of endothelial cells in a way that promotes tumor survival, invasion, and metastasis through the inhibition of endothelial cell apoptosis. It also shows a suppressive function in antitumor immune activity by promoting the recruitment and proliferation of immunosuppressive cells such as Treg cells and myeloid-derived suppressor cells. Thus, in several types of breast cancers, such as locally advanced breast cancer, the edematous inflammatory form, and subtypes, such as triple-negative breast cancer, increased VEGF levels were observed resulting from secretion by cancer cells and a significant correlation between inflammatory cytokines and VEGF due to the activation of signaling pathways in the tumor microenvironment. In turn, in breast cancer metastases, mainly bone, lung, brain, and lymph nodes, there was high expression of VEGF due to its role in the recruitment of tumor-associated macrophages (TAMs) and metastasis-associated macrophages, contributing to cancer severity and worse prognosis. **Conclusion:** Therefore, the use of VEGF as a prognostic biomarker and therapeutic target is relevant, as factors related to angiogenesis may have significant prognostic value for patients with breast cancer and/or metastatic disease.

Keywords: breast cancer; vascular endothelial growth factor; oncology.

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Education evaluation with breast cancer: an ecological study

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Objective: This study aimed to analyze the association between education level and breast cancer in Brazil among women from 2013 to 2022 and observe the relationship between education level and mortality rate in different regions of Brazil, under the hypothesis that women with lower education levels are diagnosed at more advanced stages, resulting in higher mortality rates. **Methodology:** This is an ecological study, using a time series design, based on the data collected from the national DATASUS database, including female individuals affected by malignant neoplasm of the breast between 2010 and 2022. **Results:** Among the risk factors related to a worse prognosis for breast cancer, education level stands out. A higher number of cases can be observed in patients with lower levels of education, which is more evident in the south, southeast, and midwest regions. The low level of education combined with socioeconomic factors leads to a lack of knowledge about the disease and its early detection methods, resulting in restricted access to healthcare services, delays in conducting and receiving tests, and difficulties in transportation to consults and treatment centers. Furthermore, a higher mortality rate was observed in regions such as the south, southeast, and midwest, reinforcing that women with lower education levels have a higher probability of presenting a more advanced stage of cancer at the time of diagnosis, resulting in a worse prognosis. **Conclusion:** The education level of patients proved to be an important factor related to worse outcomes in women with breast cancer in most regions of Brazil, associated with a lack of education and hindered access to healthcare services.

Keywords: breast neoplasms; education; mortality records.

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Medullary breast cancer. An experience of a tertiary Peruvian cancer center

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Objective: The aim of this study was to describe clinical features, treatment, and overall survival of medullary breast cancer of a tertiary Peruvian cancer center in the North of Peru. **Methodology:** We analyzed 07 patients with the diagnosis of medullary breast cancer at the Instituto Regional de Enfermedades Neoplásicas “Dr. Luis Pinillos Ganoza” between 2012 and 2020. Clinical features such as the timing of the disease and average age were collected. Data related to the neoplasm included stage and treatment. The overall survival was analyzed until September 2021. Categorical and continuous variables were expressed as percentages and means, respectively. The survival analysis was performed using the Kaplan-Meier curves and log-rank test. **Results:** A total of 07 patients were included in this research. The mean age was 40 years. Mostly in the right breast also, we found stages III and IV in around 57% of cases. We found more than half were cases associated with triple-negative molecular type. The mean overall survival was 64 months; most of the patients were treated with surgery, but there is no difference in overall survival with surgery alone or associated with other treatments and also no difference in overall survival regarding the molecular type. **Conclusion:** Medullary breast cancer has a very low incidence in our hospital. Most of them have locally advanced disease as initial presentation and are triple-negative molecular type. The median overall survival was more than 5 years.

Keywords: medullary breast cancer; Peru.

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Epidemiological analysis of the impact of the COVID-19 pandemic on the diagnosis of breast cancer in Northern Brazil

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Objective: This study aimed to analyze Brazilian statistical data on the impact of the COVID-19 pandemic on the diagnosis of breast cancer in all age groups, served in the states of the northern region of Brazil. **Methodology:** This epidemiological, descriptive, quantitative, and comparative study was carried out from January 2018 to December 2021 based on the data collected from the Cancer Information System (SISCAN). Mammograms were analyzed in women in the states of the northern region of Brazil presenting suspicious lesions by the systematization Best Imaging – Reporting and Data System (BI-RADS 4 and 5). Comparing mammograms performed in the period 2018 and 2019 (pre-pandemic) and, 2020 and 2021 (pandemic years), analyzing the states: Amazonas, Pará, Acre, Roraima, Rondônia, Amapá, and Tocantins. **Results:** In total, 20,2579 mammograms (2018 and 2019) and 190,219 (2020 and 2021) were performed, a drop of 7.2%. In the pre-pandemic period, 1.1% of the diagnoses of suspected injuries increased to 1.3% in the pandemic period. According to the data found, only Acre and Amapá increased the number of mammograms in the pandemic period (from 10,043 to 19,941 – Acre, 4,395 to 5,560 – Amapá), increasing 2.67 times the number of suspicious lesions in Acre and 3.97 times in Amapá. In Roraima, Pará, and Tocantins, the absolute number of diagnoses decreased in the BI-RADS 4 and 5 categories. However, it maintained the proportion of diagnosis within the mammograms performed. Comparing the pre-pandemic and pandemic periods, in the seven selected states, there was an increase in the diagnosis of suspected injury by 12%, despite having decreased the number of mammograms performed. **Conclusion:** During the period of the COVID-19 pandemic, although breast cancer screening in the States of the Northern Region of Brazil showed a decrease, the findings of BI-RADS 4 and 5 increased, showing that patients at higher risk for breast cancer continued their screening.

Keywords: COVID-19; pandemics; mammography; breast neoplasms.

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Analysis of the breast cancer mortality rate in recent years in different regions of Brazil

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Objective: This study aimed to analyze the breast cancer mortality rate in recent years in different regions of Brazil.

Methodology: A literary, descriptive, and qualitative study was carried out, using the data collected from the annual reports of the National Cancer Institute and the Ministry of Health, in the years 2019 and 2024, about breast cancer mortality in Brazil. **Results:** When carrying out the studies, it is noted that breast cancer is the first cause of death in women in Brazil, in addition to being something of concern for Brazilian health, and is also marked by great challenges for those who go through this situation. It is observed that lethality is higher at older ages, but, between 40 and 49 years of age, this rate decreases. First of all, it is extremely important to know the risk factors: age over 50 years, nulliparity, late pregnancy, obesity, and sedentary lifestyle, among others. Therefore, screening is necessary so that if the disease appears, diagnosis and treatment can occur as quickly as possible, thus avoiding death. **Conclusion:** Considering that breast cancer has a directly proportional relationship to age over 50 years, sedentary lifestyle, and nulliparity, it is concluded that understanding the contribution of risk factors to breast cancer allows health professionals to develop health strategies in order to track and prevent more cases of breast cancer deaths in Brazil.

Keywords: breast cancer; women's health and mortality.

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Brazilian Society of Mastology Podcast: creation and consolidation of a new communication channel

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Objective: This study aimed to describe the creation and first year of operation of the SBM Channel, the official podcast of the Brazilian Society of Mastology (SBM – Sociedade Brasileira de Mastologia). **Methodology:** The SBM Channel was created in 2021 at the initiative of the SBM Board of Directors, with the aim of increasing communication and generating knowledge for members and the general population. To organize it, six associated mastologists were invited, of which four were women aged between 30 and 40 years. The channel has two programs: Breast Health in Focus (BHF), released weekly and aimed at the lay public, with an objective and didactic approach, and Point and Counterpoint (PCP), released monthly and aimed at physicians, in which specialists debate various topics related to mastology. Episodes were recorded monthly in an online studio, prepared, and made available on various podcast aggregator platforms. **Results:** In 1 year, there were 13 episodes of PCP, 56 episodes of BHF, and an additional 4 episodes covering the Congress of the American Society of Clinical Oncology (ASCO). In total, 125 specialists were involved in the project, the majority of mastologists from all regions of the country. The Channel's audience was over 10,000 listeners, predominantly composed of women (67%), aged between 35 and 44 years (43%), and accessed mainly through the Spotify platform (79%). **Conclusion:** The SBM Channel fulfilled its objective of spreading knowledge among members and the general population, constituting a new form of communication and access to reliable and quality information.

Keywords: breast neoplasms, health communication, health education, webcast.

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Effects of chemotherapy on peripheral neuropathy of women breast cancer survivors: an integrative review

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Objective: This study aimed to systematize the knowledge produced in articles on chemotherapy-induced peripheral neuropathy (CIPN) and its effects on the quality of life of women breast cancer survivors. **Methodology:** The SCOPUS, PubMed, and SciELO databases were consulted for the selection of articles. Experimental and non-experimental studies published from 2011 to 2023 were selected. The descriptors used were peripheral neuropathy, chemotherapy, breast cancer, quality of life, and pain management. **Results:** A total of 11 articles were analyzed, of which three were published in English and eight in Portuguese. The findings point to the importance of diagnosing and evaluating CIPN, using specific diagnostics and evaluation methods, as well as sensitivity testing. Risk factors for developing CIPN include older age, history of neurological disease, genetic predisposition, type and dose of chemotherapy, and duration of treatment. The prevention and management of CIPN involve pharmacological strategies, such as anticonvulsants, and non-pharmacological strategies, including physical and occupational therapy, as well as complementary strategies such as acupuncture. CIPN has a profound impact on quality of life, affecting physical, psychological, and social aspects. The pain and loss of sensation limit mobility and independence, while the psychological impact includes anxiety and depression. Socially, isolation and difficulties at work contribute to a decline in quality of life. **Conclusion:** An interdisciplinary approach should be adopted that incorporates different therapeutic strategies to improve the quality of life and well-being of these patients.

Keywords: neurological; tumor; cancer treatment.

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Effects of low volume resistance training on blood pressure changes, glycemic levels, fatigue scores, bone mineral density, and muscle strength: a case study at a university hospital

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Objective: This study aimed to evaluate the effects of one resistance training (RT) session per week on indicators of blood pressure, glycemic levels, fatigue scores, bone mineral density, and muscle strength. **Methodology:** A case study was conducted with an elderly patient (78 years old; body mass: 82.8 kg; height (m): 1.54; body mass index: 34.7 kg/m²), breast cancer survivor, with mastectomy, undergoing hormone therapy, diagnosed with type II diabetes, hypertension, and grade I obesity. The RT consisted of one session per week for 8 weeks. The sessions consisted of only four exercises: bench press, lat pulldown, leg press, and crunch exercises, with progressive intensity increase throughout the sessions, which lasted an average of 30 min. Before and after the period of training, resting blood pressure, fasting blood glucose, fatigue scores, bone mineral density, and muscle strength were evaluated (CEP: 50717115.4.0000.5083). **Results:** Systolic blood pressure did not change significantly between pré and post moment (152 and 147 mmHg, respectively) as did diastolic blood pressure (77 and 76 mmHg, respectively), as well as total bone mineral density (pre=2.3 g/cm² and post=2.4 g/cm²). However, fasting blood glucose changed the classification values (pre=129 mg/dL and post=97 mg/dL). Fatigue levels classified at the pre-moment as moderate in the behavioral (2.2), affective (2.8), and sensory (0.4) domains reduced to the absence of fatigue after the intervention, although without classification change in the cognitive domain (pre=3.5 and post=1.6, respectively). Additionally, performance in the muscle strength test increased by 33% between pre-moment (90 kg) and post-moment (120 kg). **Conclusion:** A low volume of RT was able to improve glycemic levels, fatigue scores, and muscle strength performance in an elderly breast cancer survivor with diabetes, hypertension, and obesity.

Keywords: resistance training; breast neoplasms; exercise.

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Role of the nurse in the mental health of patients under breast cancer treatment

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Objective: This study aimed to highlight the importance of nurses as assistants in the mental health care of patients undergoing breast cancer treatment. **Methodology:** An integrative literature review was carried out from 2022 to 2023, using the PubMed, Medline, and Scielo databases. **Results:** Breast cancer is seen as a neoplasm that most affects women in the world; therefore, it is a disease surrounded by stigma and suffering that significantly affect the mental health of the patient who is diagnosed and it is extremely important to qualify the professional who will provide the necessary care according to the needs of each case. The role of the nurse is necessary both in prevention and, crucially, after diagnosis, in rehabilitation, providing holistic assistance, taking into account the importance of the work of the multidisciplinary team, assisting in the care plan and decision-making regarding the needs of each patient, and promoting good maintenance of physical and mental comfort. It is up to the nurse to provide humanized and effective assistance that reduces the suffering caused by this illness. In view of this, we can mention the qualification regarding the humanized and cautious approach to the treatment, which, as it is an aggressive disease, becomes long, exhausting, and causes a lot of suffering. **Conclusion:** Therefore, to identify the importance of professional nurses in relation to the mental health of patients fighting breast cancer, it was noted such importance in relation to humanized and personalized care, with vast knowledge being evident and necessary to adequate planning that will be effective both in prevention and after diagnosis in support for these patients who will continue to be assisted both with drug therapies and in a biopsychosocial way, having a long quality of life in the professional, personal, and social spheres.

Keywords: breast cancer; nursing; mental health.

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Nursing team interventions in the early diagnosis of breast cancer

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Objective: This study aimed to identify nursing interventions in the early diagnosis of breast cancer. **Methodology:** An integrative literature review was carried out from 2017 to 2024, using the PubMed, MEDLINE, and SciELO databases.

Results: The cancer panorama is constantly changing, and given this current scenario, breast cancer has become the most commonly diagnosed cancer in the world, surpassing lung cancer. Given this problem, analyzing the importance of the nursing team's role in Early identification becomes vital, considering that it is the main form of prevention and premature treatment of the disease. It was analyzed that having continuous knowledge about the topic is essential for these professionals to maintain the effectiveness of their main duties. The following interventions were identified that the nursing team must be able to carry out: participating in ongoing education on the subject, carrying out the appropriate nursing consultation, according to the clinical condition and age group, carrying out a clinical breast examination correctly, evaluating symptoms and signs related to neoplasia, requesting and forwarding exams according to the standard operating procedure of each institution, and monitoring the diagnosis and treatment of each client. All of this allows treatment to be started in advance, preventing the progression of this cancer to more advanced stages and consequently death.

Conclusion: Therefore, the nursing team plays an important role in carrying out this identification through their respective duties, as they work directly in the primary health care stage, having constant updating of their knowledge in relation to the topic brings better performance to these professionals, which is essential in relation to their role as a nurse, which involves both the physical and emotional aspects that are related to the health-disease process.

Keywords: breast neoplasms; early detection of cancer; nursing.

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Mastectomy and conservative treatment: finding balance between therapeutic efficiency and quality of life

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Objective: This study aimed to describe the points of balance between the approaches of conservative surgery and radical mastectomy in the treatment of breast cancer, based on treatment and quality of life. **Methodology:** This is a narrative review of the literature in which studies were selected from the PubMed, Scielo, and Virtual Health Library databases. We used the descriptors: mastectomy, breast cancer, Halsten mastectomy, conservative surgeries, associated with Boolean operators, and that helped in expanding the research. **Results:** There are several mechanisms available for the treatment of breast cancer, depending on the stage of the disease and the patient's condition, requiring individualized assessment of the patient to obtain a better prognosis. Thus, the radical mastectomy proposed by Halsten, its modified versions, and conservative treatments stand out. In relation to radical mastectomy, which is more aggressive but eligible in advanced diseases, there is resection of the breast, including skin and glands, pectoral muscles, and axillary lymph nodes, while conservative surgery removes only part of the mammary gland that contains the tumor. With regard to conservative surgery, even if there is no mutilation of the organ, it was analyzed that there is an increase in the rates of local recurrence of the tumor when compared with mastectomized patients. When evaluating impacts on a woman's quality of life (QL), mastectomy presents numerous problems mainly due to the imagery aspect, which leads to depressive conditions, resulting in lower biopsychosocial functioning. **Conclusion:** The treatment of breast cancer must be individualized, taking into account the possibility of recurrence, QoL, and the staging of the neoplasm. Mastectomy reduces the chance of recurrence. However, it has a greater chance of generating grief related to the loss of the breast, reducing QoL. On the contrary, conservative surgery has a better biopsychosocial aspect, but recurrences are more common.

Keywords: breast cancer; mastectomy; quality of life.

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The importance of primary care in the prevention of breast cancer in Brazil

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Objective: This study aimed to present the importance of actions to promote, prevent, and protect women's health in preventing breast cancer in Brazil. **Methodology:** This is a narrative review of the literature, using the PubMed and Google Scholar databases, using the descriptors "breast cancer prevention" and "primary care." Inclusion criteria were articles published in Portuguese, available online, and free of charge. Exclusion criteria were articles not available in full and repeated. The initial sample identified 516 studies, of which 5 were selected for the construction of this study. **Results:** The results indicate that effective primary care performance is correlated with earlier diagnoses of breast cancer, through campaigns encouraging self-care, healthy eating, and physical activity. In addition, carrying out a physical examination during consultations and health literacy actions in basic health units regarding measures to reduce the chance of developing breast cancer, enabling more effective treatments, and increasing survival rates, therefore, suggest an integrated approach between primary care services and specialized oncology and mastology services. **Conclusion:** Therefore, primary care is an important tool in the early detection of this cancer, having a significant impact on the good prognosis of patients and offering well-being and quality of life for these women.

Keywords: breast cancer; primary care; early diagnosis.

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Sequential single-agent chemotherapy as neoadjuvant treatment in early stage HER2 positive breast cancer during pregnancy: case report

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Objective: This is a case report about a successful treatment using sequential chemotherapy in pregnant patients with early HER2-positive breast cancer. **Results:** Clinical case: A 38-year-old woman was referred to our hospital on May 26, 2022, diagnosed with an early (T1N0M0, stage IA) invasive carcinoma of no special type hormonal receptor-positive HER2-positive tumor on the left breast and a 12-week pregnancy. The patient started the neoadjuvant treatment at 13 weeks and 5 days of gestational age on May 31 with four cycles of 3-weekly Doxorubicin, finishing on August 9. The treatment with Cyclophosphamide was delayed by 1 week because of transport problems, starting on August 30 and finishing on October 11. We employed a dose-dense regimen to allow time for recovery before childbirth, scheduled for November 4. The labor was a cesarean section without complications. We restarted the treatment with weekly paclitaxel and trastuzumab on November 15, 2022, after 5 weeks from the last chemotherapy. The patient underwent breast-conserving surgery and sentinel lymph node biopsy without complications, resulting in a complete pathologic response in the pathology report. She received adjuvant treatment with radiotherapy and started tamoxifen. She completed the treatment with trastuzumab. **Conclusion:** As demonstrated in the CALGB 9741 study, single sequential chemotherapy is equally effective as a concurrent protocol, being an option for patients in the early stages of the second trimester, reducing fetal exposure to chemotherapeutic agents, and enabling concomitant use of trastuzumab with taxane.

Keywords: pregnancy; breast cancer.

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Management of physical therapy after chemotherapy extravasations: case report

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Objective: This study aimed to present the role of physiotherapy after chemotherapy extravasation. Patient G.M.M.S, 75 years old, diagnosed with breast cancer, during her first session of vesicant chemotherapy via port-a-cath, experienced a burning sensation in the breast. She reported this to the team who asked her to stay under observation. After 24 h, she developed swelling, redness, and pain in the region. Over the following days, her condition worsened, requiring hospitalization and antibiotic treatment. Due to the extravasation, she continued chemotherapy treatment intravenously. Six months after the incident, she sought physiotherapy reporting a sensation of hardening, swelling, and discomfort in the breast area. Upon physical evaluation, she presented with 14 cm of fibrosis in the breast, significant edema, dilated pores, red and purplish skin, and pain rated at 6 on the Numerical Rating Scale. **Methodology:** Ten physiotherapy sessions two times per week were conducted with the aim of reducing fibrosis, edema, and pain. The approach included manual therapy in the fibrosis region, infrared photobiomodulation, shockwave therapy, and compressive taping. **Results:** After 10 sessions, there was a reduction in fibrosis to 7 cm, decreased edema, and no more pain. The patient continues with treatment. **Conclusion:** Physiotherapy offers therapeutic resources that can help reduce the inflammatory process, remodel fibrosis, and provide analgesia in tissue changes caused by extravasation.

Keywords: drug therapy; physical therapy; skin manifestations.

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Therapeutic approaches in pregnant women with breast cancer

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Objective: This study aimed to understand the therapeutic approaches recommended for pregnant women with breast cancer (BC). **Methodology:** This narrative review used PubMed, Scielo, and Virtual Health Library as databases, with the descriptors: "breast cancer," "Pregnant woman at risk," and "Therapeutic indication." **Results:** BC is considered a risk factor during pregnancy when the diagnosis occurs during or after 1 year of pregnancy. At this stage, there is greater vascularization and density of the breast parenchyma, intensified during the lactation period. These physiological changes in the pregnancy cycle make early diagnosis by mammography difficult and, consequently, lead to a higher frequency of cases of breast CA in advanced stages. Infiltrating ductal carcinoma corresponds to the majority of BCs in pregnant women; for this, the most indicated treatment, in most cases, is surgery. However, radiotherapy is contraindicated, as chemotherapy is only used in the second and third trimesters of pregnancy. The survival of pregnant women with breast CA and non-pregnant women presents little difference, but the clinical control of the patient must be multidisciplinary with an obstetrician, oncologist, nutritionist, and psychologist to confirm both the state and the gestational time, which are necessary for safe therapeutic decisions for mother and fetus. **Conclusion:** Therapeutic strategies bring several benefits in the treatment of BC in pregnant women, especially infants. Furthermore, it is important to highlight the importance of the multidisciplinary team in the treatment of BC, taking into account the benefits and risks presented for each patient; therefore, the assessment must be analyzed and individualized for each patient and the specificity of BC, all with the aim of the best treatment of the mother, ensuring the benefits of her relationship with her child and ensuring a healthy and safe motherhood.

Keywords: breast cancer; pregnant women at risk; therapeutic indication.

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Male breast cancer

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Objective: This study aimed to describe breast cancer in the male population in the literature. **Methodology:** An integrative literature review was carried out from 2014 to 2019, using the PubMed, Medline, and Scielo databases. **Results:** Malignant breast neoplasia is much more common in women and rare in men, accounting for around 1% of diagnoses, making it an uncommon cancer and being more common in patients aged 60–70 years. Lobular and the most common is ductal carcinoma, and the diagnosis is made through clinical ultrasound, mammography, and pathological studies. The assessment of genetic factors in first-degree relatives is very important. They are present in 20% of cases. We have several risk factors: hormonal, such as prostate cancer treatment, and the use of transsexuals. Obesity is one of the most frequent causes, and in cases of environmental issues, for both men and women, the treatment is similar. As initial surgery for the removal of breast tissue, nipple, and axillary emptying, others such as hormone therapy, chemotherapy, and radiotherapy have not been studied much, but due to the positivity in the receptors, it has been chosen in adjuvant treatment and followed the female guidelines. Of 80, 90% of diagnosed patients have positive estrogen and progesterone receptors. **Conclusion:** Breast cancer is very similar between men and women. Differences in prognostic characteristics may necessitate a different approach compared with female breast cancer.

Keywords: breast neoplasms; male breast neoplasms; clinical diagnosis.

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Radio-induced breast angiosarcoma: case report

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Objective: This study aimed to describe a case of radio-induced angiosarcoma after conservative surgery of the right breast, as, due to the low incidence of this neoplasm, experience in the different services is limited. Therefore, the authors call for strict follow-up, especially due to the appearance of skin changes after radiotherapy, with the aim of making an early diagnosis of the disease. **Methodology:** To write the following case report, the authors carried out a literature review in the following databases: PubMed, LILACS, VHL, NICE, Cochrane Library, and Scielo. **Results:** The authors describe the case of a 79-year-old female patient with a history of the appearance 2 months ago of an erythematous-violaceous spot, with a brownish halo, painless, measuring approximately 1.5×2.0 cm in its largest axes, with irregular edges and hardened consistency, located at the junction of the upper quadrants of the right breast and over the surgical scar. The aforementioned patient had undergone quadrantectomy and study of the sentinel lymph node (negative) 20 years ago for invasive ductal carcinoma, followed by 30 sessions of radiotherapy (5040 cGy) and endocrinotherapy with tamoxifen citrate (5 years) and letrozole (1 year). **Conclusion:** After incisional biopsy, the pathological anatomy revealed that it was an atypical vascular lesion. Immunohistochemistry demonstrated positivity for antigens related to CD31 and CD34, the absence of estrogen receptors, and amplification of the C-MYC oncogene, which confirmed the diagnosis of radiotherapy-induced angiosarcoma, in addition to grade III anaplasia. The mammogram only demonstrated skin thickening in the upper quadrants of the right breast (BI-RADS 2) and the breast ultrasound showed well-defined subcutaneous nodular formations, parallel to the skin, with parietal calcifications suggestive of steatonecrosis (BI-RADS 3). Subsequently, the patient underwent a modified Madden radical mastectomy and a study of the thoracic-lateral sentinel and parasentinel lymph nodes, which were negative for malignancy. The patient is well and is being followed up.

Keywords: radio-induced; angiosarcoma; breast.

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Adenoid cystic carcinoma of the breast: case report of a rare tumor with a good prognosis

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Objective: The aim of this study was to report a case of a rare breast cancer subtype. **Methodology:** This is a case report.

Results: This is a case of a patient diagnosed with adenoid cystic carcinoma of the right breast in June 2007, at 38 years of age. She underwent a quadrantectomy with right axillary lymph node dissection on September 14, 2007, followed by adjuvant radiotherapy, and remained under follow-up. In April 2019, probable recurrence was evidenced in the bone (L1) and lung. Bone biopsy in April 2019 did not show malignancy. Lobectomy in August 2019 confirmed metastasis of adenoid cystic carcinoma to the lung, with clear margins. She was referred for radiotherapy in L1 – 10 fractions were performed. In 2020, a nodule was found in the left kidney. A follow-up was proposed. In February 2021, there was new bone progression (osteolytic lesion in L1 and D6 with pathological fracture and pain). She was evaluated by neurosurgery, without surgical intervention. New radiotherapy was recommended. She underwent a video-assisted partial nephrectomy in October 2021, confirming adenoid cystic carcinoma. The patient is currently under follow-up and without evidence of oncologic disease.

Conclusion: Therefore, this patient was diagnosed with adenoid cystic carcinoma of the right breast in 2007 (17 years of follow-up) and experienced disease recurrence in 2019. Metastasectomies of pulmonary and renal nodules were performed, as well as radiotherapy for bone metastases. She is currently under clinical follow-up with no signs of new lesions or indication for systemic treatment. The patient is asymptomatic with preserved functionality and quality of life.

Keywords: adenoid cystic; breast cancer; oncology.

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Case report: sinusoidal obstruction syndrome post-treatment with trastuzumab emtansine in breast cancer

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Objective: Trastuzumab emtansine (T-DM1) is an anti-HER2 antibody-drug conjugate indicated for the treatment of HER2-positive breast cancer. One of the most severe adverse events reported with T-DM1 is hepatotoxicity. More recently, some cases of noncirrhotic portal hypertension have been described in patients with long-term T-DM1. The underlying liver condition is usually sinusoidal obstruction syndrome. **Methodology:** Here, we present the case of a patient with early-stage HER2-positive breast cancer who received adjuvant T-DM1 and developed hepatotoxicity due to this condition. **Results:** We report a case of a 46-year-old woman with early-stage (stage III) HER2-positive breast cancer who started adjuvant T-DM1 therapy for residual disease after HER2-directed therapy. After 3 cycles of T-DM1, the patient started a new-onset elevation of liver tests and there was focal hepatic steatosis on abdominal CT. A reduction in platelet count was also apparent during the T-DM1 therapy. Liver elastography was performed and showed signs of moderate liver fibrosis. The patient underwent a liver biopsy which revealed sinusoidal obstruction, and so T-DM1 has been suspended. Thereafter, the patient had normalization of liver tests and platelet count. After discussion with a Hepatologist, we opted to definitively suspend T-DM1 therapy due to the risk of progression to noncirrhotic portal hypertension. **Conclusion:** We presented a rare case of sinusoidal obstruction syndrome induced by T-DM1 in a patient with breast cancer. Hepatotoxicity is one of the main adverse events of T-DM1. A high index of suspicion for liver injury must be maintained for patients who develop liver test abnormalities and/or signs of portal hypertension during treatment with T-DM1. This shows the usual complexity in treating patients with new drugs for breast cancer and the importance of multidisciplinary monitoring.

Keywords: trastuzumab emtansine; sinusoidal obstruction syndrome; breast cancer.

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Intraoperative physiotherapeutic approach in oncoplastic surgery: case report

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Introduction: Fat grafting is a very useful technique in partial and total breast reconstructions. In this technique, where adipose tissue is liposuctioned and purified, it is injected into the breast tissue or thoracic wall to correct deformities or due to its regenerative effect on the skin, improving elasticity and reducing the risk of capsular contracture and rippling. The donor region may experience pain, swelling, and bruising, natural events of inflammation. Normally, mechanical compression is applied, such as a surgical shaper, but the importance of physiotherapeutic action in the recovery process deserves further study. **Methodology:** Ethical Aspects: The patient signed an informed consent form for the presentation and publication of the Case Report. Case Report: Patient L.M.R.M, female, 68 years old, underwent mastectomy and axillary clearance and immediate reconstruction with an expander on the left side, in January 2022. The anatomopathological study showed classic lobular carcinoma, grade 1, 3.2 cm, 7/24 lymph nodes, and TNM classification pT2pN2M0 IIIb. Luminal B. She finished chemotherapy and, soon after, 15 sessions of radiotherapy. She underwent a second surgical approach in 2023, Liposuction 480 mL lipofilling, exchange for an extra high projection anatomical implant, and on the right breast, augmentation mammoplasty and mastopexy. She uses letrozole and aprazolam. **Results:** Physiotherapy Approach: Because it is mature skin, concerning the aesthetic and functional appearance of the abdominal region, as the donor region, adhesive elastic bandages were applied intraoperatively with the aim of reducing pain, containing swelling, tissue alignment, favoring skin retraction, absorbing bruises, and preventing fibrosis. The patient received 3 weekly physiotherapy sessions after the removal of the bandages, on the seventh postoperative day. During the sessions, the approach was through manual therapies and kinesiotherapy. **Conclusion:** We believe that physiotherapy helps the patient resume her daily life activities with functionality and a better quality of life, as happens in aesthetic plastic surgeries.

Keywords: breast neoplasms; mammoplasty; physiotherapy modalities; compressive bandages; exercise therapy.

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The influence of social skills in the humanization of breast cancer care

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Objective: This study aimed to analyze how social skills can influence the care of patients with breast cancer, in order to create humanized care. **Methodology:** A bibliographical survey of the last 6 years was carried out in the PubMed and VHL virtual libraries, and articles related to this topic were also selected. **Results:** Breast cancer is more prevalent among women, causing different biological and psychological changes in a unique way in each patient. These changes require a holistic approach to care, which is capable of addressing not only the physical aspects of the illness but also the biopsychosocial, spiritual, and family conditions that directly interfere with the course of women's treatment and recovery. Part of these essential factors is family support, together with the multidisciplinary team, which plays an essential role in this context, developing emotional assistance that contributes considerably to the well-being and quality of life of patients. In this way, it is possible to promote a broad support network that involves professionals and family members who contribute substantially to a humanized care practice. Studies have shown that empathetic care, touch, welcoming, and qualified listening are examples of social skills, which, combined with assistance to patients with breast cancer, promote humanization and comprehensiveness of care. In this way, the results showed safer and more confident patients, with greater adherence to treatment, reducing fears and negative apprehensions regarding the disease. In this sense, this approach has proven to be efficient, especially in Brazilian public health demands, providing more complete, humane, and ethical care. **Conclusion:** In this sense, social skills improve care, contributing to improving the quality of life of breast cancer patients by providing a comprehensive look at each patient and addressing their different aspects.

Keywords: social skills; breast cancer; breast neoplasm.

