Award Winning and Best Scored Abstracts from NCoBC 33rd Annual Interdisciplinary Breast Cancer Conference

Committee Chair: Dr. Atilla Soran
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Category I

Demographic Impact and Clinical Insights: A Comprehensive Analysis of Glycogen-Rich Carcinoma of the Breast Using National Cancer Database Data (2004-2020)

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Objective: Glycogen-rich carcinoma of the breast, an exceptionally rare subtype of invasive breast carcinoma, manifests characteristic polygonal cells with abundant clear cytoplasm containing diastase-sensitive glycogen deposits. However, varied morphologies and clinical outcomes contribute to a wide range of prognoses, warranting further investigation using updated data from the National Cancer Database to explore demographic impact on prognostic factors.

Materials and Methods: A retrospective cohort investigation of the National Cancer Database (NCDB) was conducted which spanned the years 2004–2020 involving 131 patients with a confirmed diagnosis of Glycogen-rich carcinoma. Demographic factors were examined, and a regression analysis was conducted.

Results: Among the group of individuals diagnosed with Glycogen-rich carcinoma (GRC), the median age at diagnosis was 61 with a mean survival time post diagnosis of just under 12 years. Most (94%) underwent surgical procedures as their primary method of treatment for GRC, with the final status of surgical margins post-resection of the primary tumor revealing that the majority of cases (92%) had no residual tumor. As their primary treatment, most patients received radiation therapy (64%) and chemotherapy (62%), while a minority received hormone therapy (31%). A predominance of patients with GRC were female (97%), white (86%), and of non-Spanish, non-Hispanic origin (92%). Many cases came from a comprehensive community cancer program (44%) or an academic program (32.5%). At the time of diagnosis, the vast portion of patients (98%) were covered by some form of primary insurance with private insurance (50%) and Medicare services (41%) composing the majority of this cohort. The top primary site for nearly all cases was the breast (98%) with the upper-outer quadrant of breast (42%) and overlapping lesion of breast (20%) being the leading primary sites. Most patients (87%) were classified as either Stage I or Stage II analytic stage group. A large percentage of the individuals (86%) did not have any concurrent comorbidities (Charlson-Deyo = 0).

Conclusion: Following a review of the available literature, our findings suggest a possible knowledge gap in the discussion of glycogen-rich carcinoma that this novel NCDB analysis addresses. Socioeconomic factors revolving around patients living with glycogen-rich carcinoma have not yet been discussed in literature, and our findings show that a significant percentage of patients had some form of private insurance. Many were not of a minority background and a vast majority possessed few comorbidities. Given the paucity of research of this cancer, continued investigation is necessary to establish a more complete understanding of how demographics, socioeconomic factors, and treatments affect survival and outcomes of patients with glycogen-rich breast carcinoma.

Keywords: Glycogen-rich; corcinoma; treatment

Category I-A. Breast Center Office Operations Efficiency and Productivity

Implementing Standardized Ordering Pathways in a Breast Cancer Multidisciplinary Clinic Lifespan Cancer Institute, Providence RI

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Objective: Timeliness of cancer care from diagnosis to implementation of systemic therapy is a quality metric and may impact patient outcomes. Estrogen receptor-positive human epidermal growth factor receptor 2-negative early-stage breast cancer genomic assays including the 21 gene recurrence score (21-RS) are prognostic for chemotherapy benefit, and results impact shared medical decision making. The Lifespan Cancer Institute (LCI) Breast Cancer Steering Committee (BCSC) Quality Team noted significant variation in turnaround time (TAT) from time of surgery to 21-RS report, resulting in significant delay in care recommendation. Breast cancer patients are seen by multidisciplinary teams at 4 LCI sites which can contribute to variability in care processes. The LCI BCSC consists of a multidisciplinary team of surgeons, medical oncologists (MO), pathologists, Breast Cancer Navigators (BCN) and other members. The BCSC initiated a quality improvement project to address process variance and barriers to efficient and consistent 21-gene RS order and tissue send-out.

Materials and Methods: Two steps in 21-RS order were identified for intervention. 1. MO and BCN share an electronic medical record (EMR) results box including pathology reports. Breast surgeons will attach MO as electronic recipients to receive the surgical pathology report immediately on EMR sign out. MO and BCN will review pathology results and initiate 21-RS orders per American Society of Oncology (ASCO) guidelines. 2. Pathologists will identify appropriate tissue block for 21-RS at time of sign out to facilitate pathology staff block selection for tissue send out. Data was extracted by Exact Science (ES) from the 21-RS electronic order database. TAT from surgery to 21-RS ordering and TAT from surgery to results return were provided. We examined TAT prior to intervention (January-April 2023 n = 69 orders) and after intervention (August-October 2023 n=53 orders).

Results: The baseline average time from surgery to 21-RS order was 16 days preintervention and 10-days post-intervention, resulting in a total decrease of 6 days from surgery to order. As such, date of surgery to 21-RS report return decreased from 27 to 21 days.

Conclusion: Multidisciplinary discussion of quality issues in our LCI BCSC is an effective way to identify barriers to care and initiate a plan-do study-act quality improvement process. LCI BCSC has established a consistent streamlined process for 21-RS orders. Attaching MO to pathology reports and pre-selecting slides for send-out has reduced the internal processing time for 21-RS order results by 6 days. The process will be examined for TAT twice a year and presented to the BCSC for ongoing process improvement. This project focused on timely patient-centric care and reducing patient anxiety.

Keywords: Multidisciplinary; quality; improvement

Check Out My Rack: A Webinar Empowering Young Women Through Comprehensive Breast Health Education

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The Brem Foundation to Defeat Breast Cancer, Maryland, United States

Objective: The Brem Foundation to Defeat Breast Cancer, a 501c3 non-profit organization based in the Washington, DC area, is dedicated to advancing early detection through education, access, and advocacy. While conventional guidelines recommend initiating annual breast screenings at age 40 for women of average risk, Brem underscores the importance of starting breast health education and empowerment earlier in life. Nearly 80% of young women with breast cancer find their own breast abnormality and 1 in 10 breast cancers occur in women under the age of 45, making self-exams and education essential. As part of our education programs, we aim to engage younger women and people of pre-screening age in breast cancer awareness through an annual webinar titled "Check Out My Rack".

Materials and Methods: Since 2021, Brem Foundation has hosted three annual webinars titled "Check Out My Rack". Tailored to resonate with college students and women under 40, each hour-long session shares essential breast health information, including the importance of family history, genetic testing, self-exams, and encouraging loved ones to screen. The webinars included live self-exam tutorials, provided self-advocacy tools, and featured compelling narratives from prominent young survivors. Participants were encouraged to engage with the expert educator radiologists and breast health advocates who lead the programs and to ask questions related to their breast health.

Results: In 2023, 299 people registered for Check out My Rack with a total of 130 attending the webinar, doubling attendance from the year prior. Over 48 educational materials were downloaded by participants, Brem Foundation obtained 191 new contacts for future educational engagement, and doubled the conversion rate of registrants to attendees in 2023, from 21% to 42%. Using a "collaborator" model, Brem engaged like-minded entities to market the event and grow attendance, resulting in exposure to an additional 175,000 people.

Conclusion: The Brem Foundation's commitment to empowering women with breast health education is evidenced by the growing success of the "Check Out My Rack" webinars and web-based education. Future studies will evaluate the efficacy of these increasingly popular programs in terms of breast cancer detection.

Keywords: Webinar; young women; education

Effectiveness of Community Education for Breast Cancer Screening

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Objective: Screening based on individual risk factors results in detection of earlier, more curable breast cancer. There is expectation that improved public education about the importance of personalized screening will result in earlier diagnoses and reduced breast cancer mortality. The purpose of this study is to evaluate the effectiveness of community education on patient perceptions about risk-based screening.

Materials and Methods: This study is HIPAA compliant and institutional review board exempt. A standardized curriculum was used by radiologists and experts to conduct nine one-hour patient education sessions between 10/2018 and 1/2019 about breast cancer risk factors and screening options. Patient participants completed voluntary, anonymous pre-event and post-event surveys to determine if the presented educational program led to attitude changes. Survey results were summarized using statistical analysis including mean, median, range, and percentage of participants responding and comparison of pre- and post-event fear and anxiety.

Results: Of 336 education session participants, 59.5% (200/336) completed the pre-event and 44.3% (149/336) completed the post-event surveys, Respondents reported decreased anxiety and fear regarding breast cancer screening following educational sessions, with 36.1% (64/178) reporting anxiety pre-event compared to 23.3% (31/133) post-event, although the difference was not statistically significant (p = 0.96). Additionally, 64.7% (55/85) of participants stated they were more likely to schedule breast cancer screening based on individual risk factors and 98.0% (145/148) of participants reported increased knowledge on post-event surveys.

Conclusion: This study demonstrates the importance and effectiveness of community-based educational programs in increasing knowledge of risk-based screening and potentially reducing anxiety related to screening.

Keywords: Screening; community; education

Category I

Enabling Patient-Driven Oncoplastic Procedures Through Streamlined Oncology Centre Policy Structuring

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Objective: The concept of a multidisciplinary "team in oncoplastic and reconstructive surgery has resulted in the polarity of either an oncology surgeon doing both the oncological surgery and oncoplastic surgery or time time-delayed referral to a plastic and reconstructive surgeon. This long-standing quandary in breast oncology centres has provided many opportunities to study how to ensure quality oncoplastic procedures are offered to patients. Studies of the last two decades have listed a number of socio-economical factors ranging from age, resources and stage of cancer, access to affordable oncoplastic specialists which are considered as being difficult to impossible to quantify. However, other factors which are modifiable, such as referral logistics and patient education, can be addressed through the use of formal oncology centre policies, and this information provided to patients and medical practitioners outside of structured oncology centres could increase the option for patients to receive the best standard of oncoplastic support.

Materials and Methods: At the Breast Care Center of Excellence all patients have diagnosis and treatment plans discussed in a multi-disciplinary meeting (MDM) including prior and post-treatment discussions with their primary care physician. This treatment plan of action is provided by the MDM. for the clinician's follow-up consultation and includes all treatment options from surgery to systemic treatment, including oncoplastic and reconstruction discussions. The follow-up consultation is booked in conjunction with a same-day referral to an oncoplastic specialist, normally at the same centre as the primary physician.

Results: The policy implementation that 100% of patients receiving a cancer diagnosis have an oncoplastic consultation on the same day as they receive their diagnosis and potential treatment plans resulted in a 3-year average of 99.8% reconstructive procedures with >95% choosing immediate reconstruction to accompany their surgical procedure. This has resulted in over 3600 oncoplastic procedures in over 2000 patients between 2000 and 2023.

Conclusion: Studies have shown that as few as 1 in 3 patients recall discussing reconstructive options with their primary surgeons. This is further exacerbated by up to 45% of physicians saying their own inadequate experience with oncoplastic procedures negatively influenced their decisions to refer patients to plastic surgeons. The implementation of same-day referral for oncoplastic options and the offering of reconstructive procedures under a breast specialist to all patients is a viable treatment path for all patients.

Keywords: Patient-driven; oncoplastic; sameday referral

Category II

Cancer Risk Assessment and Hereditary Cancer Genetic Testing in a Community OBGYN Setting

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Objective: American Cancer Society, American College of Obstetricians and Gynecologists, American College of Radiology, The American Society of Breast Surgeons, National Comprehensive Cancer Network, and United States Preventive Services Task Force recommend cancer risk assessment and hereditary cancer genetic testing for appropriate individuals. It has been previously estimated that approximately 24% of unaffected patients meet national guidelines for hereditary cancer testing. Given the recent expansion of hereditary cancer genetic testing guidelines and improved understanding of the impact of genetic test results on patient management, we set out to determine the percent of unaffected patients meeting updated genetic testing criteria, outline breast cancer risk assessment and genetic test results, and delineate the percent of patients in whom management change would be recommended.

Materials and Methods: This process-intervention study included the implementation of a hereditary cancer risk assessment process for patient identification at 5 unique community obstetrics and gynaecology (OBGYN) practice sites from September 2021 to November 2022. Myriad Genetics' team of certified genetic counselors provided pre-test patient education. Germline genetic testing used the MyRisk multigene panel and additional breast cancer risk stratification was based on the Tyrer-Cuzick breast cancer risk model and RiskScore. Results disclosure and care management was performed and/or coordinated though the community OBGYN provider. Descriptive statistics were used for the analysis, including genetic screening and testing completion rates.

Results: Sample Size: 5135 (4553/5135 [88.7%] provided a family history)

Met NCCN Testing Criteria: 1285/4553 (28.2%)

Patients offered Genetic Testing of those who met guidelines: 1145/1285 (89.1%)

Submitted a Sample for Genetic Testing: 515/1145 (44.97%)

Completed Testing: 439/515 (85.2%)

Number of Patients with Pathogenic Variants* – 14/439 (3.2%): 1 *BRCA2*, 2 *PALB2*, 4 *CHEK2*, 1 *MSH6*, 1 *PMS2*, 1 *BRIP1*, 1 *RAD51C*, 2 *HOXB13*, 2 *MITF*

*1 patient was a carrier of >1 pathogenic variants.

Tyrer-Cuzick and RiskScore Risk Assessment:

Overall % of women with a lifetime risk of breast cancer ≥20%: 36.5%

Conclusion: More than 28% of individuals meet national guideline criteria for genetic testing, a clinically meaningful increase from previous findings of 24%. In addition, 36.5% of patients in which pathogenic variants were not identified are also deemed to be at elevated risk for breast cancer and warrant considerations for medical management change. Comprehensive cancer risk assessment identifies patients at elevated risk and helps to ensure that medical management is tailored to the appropriate risk level for each patient.

Keywords: Risk assessment; hereditary cancer; community setting

Subcategory 2A: Nursing and Innovative Nursing Roles

Breast Implant Surgery; Risks and Health Complications

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Objective: Understand the complications of breast implant surgery, breast implant illness (BII), breast implant-associated anaplastic large cell lymphoma (BIA-ALCL), and breast implant-associated squamous cell carcinoma (BIA-SCC). Understand why universal screening for implantable devices is a proposed addition to the nursing process and how utilizing this screening tool can enable illness-specific care in a timely manner. Current research on breast implant surgery demonstrates a risk of health complications: BII, BIA-ALCL, and BIA-SCC. Impacting patient safety worldwide, it is not standard healthcare practice to screen every patient at every healthcare encounter for the presence or absence of an implantable device or a history of an implantable device, specifically breast implant devices. However, by not doing so, nurses and other healthcare providers may miss the opportunity to identify systemic illness or cancer that could be related to breast implant devices. A lack of provider and nursing awareness and a knowledge gap regarding BII, BIA-ALCL, and BIA-SCC were also identified, and this is a significant patient safety concern.

Materials and Methods: To facilitate the research process, dependent and independent variables were identified. Internet database searches and widespread exploration of Medline, CINAHL, Google Scholar, and PubMed were conducted for peer-reviewed studies on this research topic.

Results: Estimates show over 300,000 women had breast implant surgery in 2019 (McKernan et al., 2021). Studies from the United States, Canada, Europe, and South America demonstrate that BII is a global phenomenon. Watad et al. (2018), in their cross-sectional study, analyzed population data from a 20-year time period that identified 24,651 women with breast implants with symptoms of BII. Lack of provider follow-up has led to underreporting of BII, BIA-ALCL, and BIA-SCC cases. The U.S. Food and Drug Administration recognizes BII, BIA-ALCL, and BIA-SCC as potential risks and health complications of breast implantation. Black box warnings have now been added to breast implants.

Framework: The IOWA model was chosen to guide the proposed evidence-based practice update and change.

Conclusion: To identify those at risk for implant-related illnesses, universal screening for implantable devices is proposed. Universal screening for implantable devices is defined as assessing all patients at every healthcare encounter for the presence of an implantable device or a history of an implantable device. Universal screening for implantable devices determines which patients are at risk for implantable device-related systemic illness or cancer and enables illness-specific care promptly. Successful evaluation occurs when healthcare providers' standard practice screens all patients for implantable devices.

Keywords: Breast implant surgery; risks and health complications of breast implant surgery; screening for implantable devices

Category II

Analysis of a South African Accredited Cancer Centre - Suspected Correlation between BMI and Biology

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Objective: The Breast Care Center of Excellence Johannesburg, South Africa, has been undergoing database reviews as part of its accreditation procedure since 2016; this has driven a number of research questions to arise due to database correlations. Since the drive to personalised oncology and the treatment of cancer subtypes based on the biology of cancer, the ability to search for correlations between presented biology and the associated causes of such biology rising has become possible.

Materials and Methods: Analysis of the complete database from 2016 to 2022 showed a number of patients having complete medical workups included in the initial clerk, including their body mass index (BMI); this data was correlated to their pathologically determined biology (LumA, LumB, Her2, TripNeg) and each subgroup was compared to the normal distribution of BMI based on the local population range. Further, Pearson's R assessment was performed to determine the degree of variation between these groups and the control, and the statistical significance of this variation was done via chi-squared analysis.

Results: For the Groups of Luminal A and human epidermal growth factor receptor 2 (HER2), the deviation from the statistical norm came in at less than 5%, showing that there is no significant relationship between these cancer biological subtypes and the expected normal distribution. However, for both the HER2 groups and the Luminal B group, there was a significant deviation from normative distribution, around 30% deviation towards larger BMI in the HER2 group and a 45% deviation in the Luminal B group; this incredibly large deviation shows that with a p-value of 0.05, the majority of a greater majority of Luminal B patients would fall into the category of overweight to Obese that not, and this deviates from the population norm at a rate exceeding 1 in three patients.

Conclusion: Large studies to assess the correlation between BMI and biology are required to confirm this observation; internally, this assessment with be included as a prospective review with all patients' BMI and Biology being recorded. This will prompt the assessment of the impact of hormone-sensitive cancers and their prevalence, including additional risk factors such as BMI.

Keywords: Body mass index; biology; correlation

Category II: Patient Care and Support; D Breast Cancer Genetics/Screening

Understanding the Psychological Effects of Attending Regular Cancer Screenings

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Objective: To better understand the psychological effect of breast cancer screening on patients in an outpatient Breast Center. Correlations between psychological symptomatology, worry about cancer and being screened for breast cancer were studied.

Materials and Methods: The Breast Center was established in 1995. In 2023, a total of 8,462 patients were screened for breast cancer. Upon referral to the Breast Center, patients were approached to determine their interest in participating in the research study. Participants were required to complete three instruments, as follows: 1) Demographic Form (13 items); 2) Cancer Worry scale (6 items, higher scores are indicative of more worry about cancer); and the Indices of Pathophysiology-SPECTRA Assessment Scale (96 items). The Cancer Worry scale assesses concerns about cancer recurrence and the impact of these concerns on daily functioning. SPECTRA includes 12 clinical scales providing direct measurement of conditions, such as: depression, anxiety, social anxiety, and post-traumatic stress, The Cancer Worry Scale and SPECTRA are valid measures that have been used in past research in a manner currently being used in this research study.

Results: The sample included 154 participants with an average age of 59.3 years (range 30–85; standard deviation = 12.8). The ethnicity majority was 93.4% Caucasian American. 55.2% of participants reported being currently employed. 21.4% reported a history of cancer, 9.1% reported a history of breast cancer and 33.8% reported a family history of cancer. Higher scores on the Cancer Worry Scale were related to SPECTRA scores on depression (r = 0.35, p<0.001), anxiety (r = 0.39, p<0.001), post-traumatic stress (r = 0.21, p = 0.03), and the general psychopathology index (r = 0.28, p = -0.27). There was a relationship between how treatable the participant thought cancer was and depression scores (r= 0.27, p= 0.01). Those who reported poorer overall physical health also reported more anxiety about cancer (r= 0.24, p<0.01).

Conclusion: Being screened for cancer is thought to be an anxiety provoking experience for patients and possibly more so for those with a personal or family history of cancer. Nevertheless, many patients currently do not receive regular screening tests. As a result, psychological anxiety and other forms of emotional distress go undetected; and, as a result, not treated in a timely manner. Including psychological assessment of patients being screened for cancer facilitates early intervention to help ameliorate possible psychopathology associated with cancer screening.

Keywords: Psychological assessment; breast cancer; cancer fear; anxiety; breast cancer screening

Category II

Patterns of Practice for Prophylactic Lymphedema Sleeve Prescription at a Tertiary Care Center

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Objective: Studies have shown that prophylactic compression sleeve use following axillary lymph node dissection (ALND) for breast cancer (BC) can reduce the incidence of arm swelling in women at high risk for lymphedema. As of January 2024, Medicare Part B has expanded to include coverage of lymphedema compression treatment items, but currently, only 38% of US private insurance policies include a statement of coverage for lymphedema treatment. To understand prophylactic sleeve prescription patterns prior to this expansion, we identified potential factors associated with prophylactic sleeve prescription at our institution.

Materials and Methods: Using the electronic medical record, we identified patients who had a lymphedema therapy (LT) referral within three months of ALND between May 2022-August 2023. Patients were excluded if they did not undergo a true ALND (<10 nodes removed), if they did not have a BC diagnosis, or if they did not have complete LT records. Chi-squared and ANOVA tests were executed to assess relationships between sleeve prescription and patient factors.

Results: Eighty-two patients had a diagnosis of BC and an LT referral following ALND. Median age at diagnosis was 53 years and a median of 20 nodes were removed at ALND. Most (70%) patients underwent mastectomy, while the remainder underwent lumpectomy, chest wall wide local excision, or ALND alone. Nearly all (88%) patients had private insurance, while 8.5% had exclusively Medicaid and 3.7% had only Medicare or Tricare. About a quarter (21/80; 26.3%) of patients received prophylactic lymphedema sleeve prescriptions, and prescriptions were not associated with type of breast surgery, dominant side ALND, number of nodes removed, percentage of positive nodes, body mass index, smoking status, prior cellulitis, cup size, or type of insurance. Younger patients were more likely to receive a prophylactic compression sleeve prescription, but this did not meet statistical significance (p = 0.055).

Conclusion: None of the factors that we examined were associated with receiving prophylactic compression sleeve prescription. However, specific private insurance policies may be a barrier for patients wishing to receive prophylactic compression treatment. Given the recent lymphedema sleeve coverage expansion by Medicare, we hope to use our data to compare sleeve use before and after this change in the future. Additionally, education about the benefit of prophylactic compression sleeve use may also increase the rate of prescriptions.

Keywords: Lymphedema; prophylactic; compression sleeve

Category III: Breast Disease Diagnosis and Management/A. Diagnostic Imaging/1. Screening and Diagnostic Mammography

Performance Metrics of Screening Digital Breast Tomosynthesis Based on Age

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Objective: The United States Preventive Services Task Force (USPSTF) recently updated its guidelines for screening mammography, recommending that all women begin screening at age 40 (rather than 50). The USPSTF also identified research gaps, one of which is that "research is needed to determine the benefits and harms of screening for breast cancer in women aged 75 years or older." The purpose of this study is to determine the performance metrics of screening digital breast tomosynthesis (DBT) based on age.

Materials and Methods: In this institutional review board-approved and HIPAA-compliant study, screening mammograms obtained from 2013 to 2019 at an academic medical center were retrospectively reviewed. All screening mammograms consisted of combined digital 2D mammography and DBT. Each mammogram was classified as a true-positive, true-negative, false-positive, or false-negative examination based on one-year follow-up data. Performance metrics were calculated according to standard definitions in the BI-RADS Atlas and compared among age groups using logistic regression models.

Results: Over the study period, 93,619 women (mean age 57 years, standard deviation 12 years) underwent 302,703 screening DBT examinations. The cancer detection rate (CDR) ranged from 2.9 per 1,000 examinations (208/70,549) in women aged 40–49, to 8.3 per 1,000 examinations (399/48,205) in women aged 70–79, to 10.6 per 1,000 examinations (127/12,021) in women aged 80+ ($p<0.001$). Positive predictive value (PPV) 1 and sensitivity were lowest in women aged 40-49 (3.2% and 72.5%, respectively). PPV1 was highest in women aged 80+ (19.2%), and sensitivity was highest in women aged 70–79 (91.7%). Abnormal interpretation rate (AIR) was highest and specificity was lowest in women aged 40–49 (9.3% and 91.0%, respectively). AIR was lowest and specificity was highest in women aged 80+ (5.5% and 95.5%, respectively).

Conclusion: CDRs increase with advancing age, while false-positive rates decrease with advancing age. The CDR is 2.9 per 1,000 examinations in women aged 40–49, which is within the American College of Radiology acceptable range of 2.5 or more cancers per 1,000 examinations. CDRs are higher than 8 per 1,000 examinations in women aged 70 and above, while AIRs are below 6%. Given that the CDRs are high in older women and the potential risks of false-positive examinations are low, our study supports guidelines recommending that screening decisions be based on individual preferences and health status rather than age alone.

Keywords: Screening; tomosynthesis; age

Category III

De-Escalation of Endocrine Therapy After Mastectomy for Ductal Carcinoma *In Situ*

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Objective: Ductal carcinoma *in situ* (DCIS) of the breast may be treated locally with either breast conservation therapy, involving segmental mastectomy followed by radiation, or total mastectomy. Per current guidelines, hormone-positive DCIS is then treated systemically with adjuvant endocrine therapy (aET). We sought to determine whether a significant benefit exists for aET following both bilateral and unilateral total mastectomy for DCIS.

Materials and Methods: We conducted a retrospective cohort study of DCIS cases treated surgically with mastectomy between 2010 and 2022 at a high-volume academic cancer center. Only patients diagnosed with pure DCIS on final surgical pathology were included in this analysis. We evaluated recurrence rates and survival outcomes after unilateral total mastectomy (UTM) or bilateral total mastectomy (BTM) performed for DCIS, with or without aET.

Results: A cohort of 290 patients were included and evaluated, 46 underwent BTM and 244 underwent UTM. In BTM group, mean age (± standard deviation) was 55.8±12 years and median follow-up duration & interquartile range (IQR) was 58 (27–96) months. For BTM, 40 patients (87%) did not receive aET, with no reported recurrences and one mortality unrelated to breast cancer. In UTM group, mean age was 61.1+12 years, and median follow-up time was 61 (IQR 37.5–94) months. For UTM, 158 patients (65%) did not receive aET, with two recurrences (1%), one mortality due to metastatic breast cancer and 13 mortalities unrelated to breast cancer. For UTM, 82 patients (35%) received aET, with one recurrence (1%), with subsequent breast cancer related mortality and five mortalities unrelated to breast cancer.

Conclusion: Our data demonstrated no significant oncologic benefit related to aET for patients with pure DCIS on final surgical pathology, following either BTM or UTM, at 5-year follow-up. This conclusion supports the current recommendation for individualized discussion of the risks related to side effects versus benefits including risk reduction in the contralateral breast in the setting of UTM and reduction of invasive systemic recurrence in this specific cohort. Further investigation examining the balance of potential side effects and impact on compliance of aET is needed to understand this risk benefit ratio and to improve treatment guidelines.

Keywords: De-escalation; mastectomy; endocrine therapy

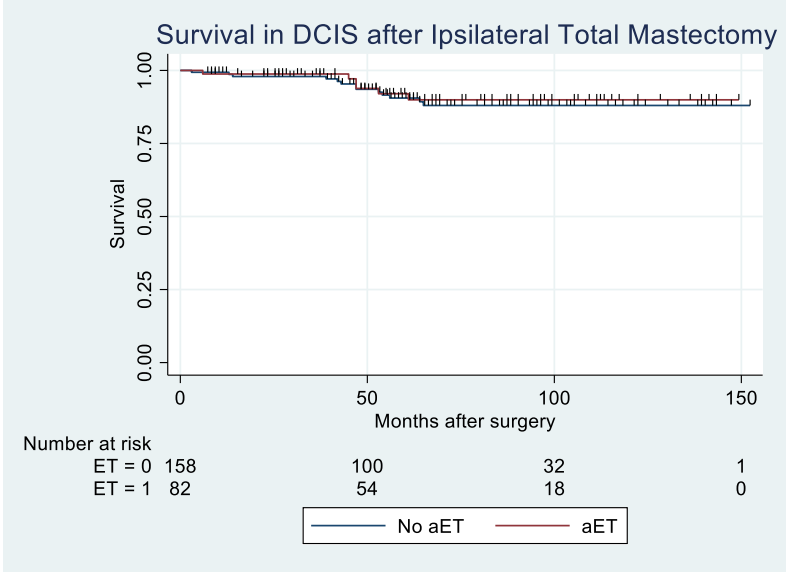

Figure 1.

Category III-A: Diagnostic Imaging 2. Ultrasound

Axillary Ultrasound of Patients With and Without Breast Cancer: Sonographic Predictors of Malignancy

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Objective: Considerable overlap exists between benign and malignant sonographic axillary nodal features, especially in patients without a known breast cancer (BC) diagnosis. Biopsy criteria, including cortical thickness cut-offs for patients without BC (woBC), are not defined. In this study, we aim to compare the malignancy risk of sonographic features of abnormal axillary lymph nodes in patients with and without a concurrent BC diagnosis.

Materials and Methods: Upon institutional review board approval, women who underwent ultrasound (US) guided axillary lymph node fine needle aspiration or core needle biopsy in community imaging sites from January 1, 2015 to October 26, 2021 were identified. Patients with a history of recent COVID-19 vaccination, non-nodal findings, nodal calcifications as lone finding, or no available reports of associated diagnostic study or subsequent pathology were excluded. Patients were categorized based on presence of concurrent BC diagnosis; sonographic and pathologic data were then collected. All statistical modeling was conducted using generalized linear modeling using a binary distribution.

Results: Final analysis included 86 women woBC and 106 women with breast cancer (wBC). For woBC patients, the odds of malignancy increased 3-fold [odds ratio (OR): 4.1, 95% confidence interval (CI) (1.501, 11.055)] when an absent hilum was noted on US relative to preserved hilum; for wBC patients, the odds increased almost 27-fold [OR: 27.9 (3.573, 218.201)], $p<0.001$. For woBC patients, the odds of malignancy increased 19% [OR: 1.19 (0.94, 1.52)] for every unit increase in cortical thickness (mm); for wBC patients, the odds increased 73% [OR: 1.7 (1.23, 2.43)] for every unit increase, $p<0.001$. For woBC patients, the odds of malignancy increased 150% [OR: 2.5 (1.3, 5.1)] for every cm increase in the short axis dimension; for wBC patients, the odds increased 300% [OR: 20.95 (4.1, 105.99)] for every unit increase, $p<0.001$. A 3 mm cortical thickness in wBC patients had a 30% likelihood of malignancy; an 11 mm cortical thickness in woBC patients had a 30% likelihood of malignancy.

Conclusion: In all patients, sonographic axillary nodal features of absent hilum, increased nodal size, and cortical thickness were found to predict malignancy; however, malignancy rates were much higher in the wBC group than in the woBC group for the same imaging findings. These results suggest it may be reasonable to use higher cut-offs for criteria such as cortical thickness when determining need for biopsy in wBC vs woBC patients.

Keywords: Axillary ultrasound; prediction; malignancy

Category III

The Effect of Sentinel Lymph Node Biopsy on Immediate Implant-Based Breast Reconstruction: A NSQIP Study

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Objective: The surgical management of breast cancer continues to evolve, and plastic surgeons continue to play an important role. The status of axillary lymph nodes is one of the most important factors impacting treatment and decision making. Sentinel lymph node biopsy (SLNB) is considered standard of care for evaluation of the axilla in patients with clinically node-negative breast cancer, but this does not come without its own morbidity. As the majority of patients who undergo immediate reconstruction choose implant-based reconstruction, it is imperative we explore how this is impacted by concurrent SLNB. The aim of this study is to use the National Surgical Quality Improvement Program (NSQIP) database to determine if SLNB at the time of mastectomy with immediate implant-based breast reconstruction affects patient outcomes.

Materials and Methods: The American College of Surgeons-NSQIP (ACS-NSQIP) data between 2016–2021 was accessed to identify patients who underwent mastectomy and immediate breast reconstruction with implant or tissue expander (CPT codes 19303 and 19340). From this cohort, patients who underwent SLNB (CPT 38525 or 38500) were divided into two groups, those who underwent SLNB at the time of mastectomy and those who did not. Rates of complications including overall morbidity, surgical site infections, wound complications, development of DVT or PE, unplanned reoperation, readmission, length of stay, and operative time were compared using the Pearson chi-squared test.

Results: 32,171 patients underwent mastectomy with immediate implant-based breast reconstruction and were included in the analysis. 22, 807 patients underwent SLNB while 12,419 patients did not. There were no significant differences in overall morbidity, surgical site infections, need for additional unplanned procedures, length of stay, or operative time between the two groups. There was a significantly higher rate of unplanned readmission in the biopsy group ($p = 0.002$).

Conclusion: SLNB performed at the time of mastectomy and immediate implant-based breast reconstruction does not increase overall morbidity, length of stay, or operative time compared to immediate breast reconstruction performed without SLNB. Unplanned readmission rates were significantly higher in the SLNB group. This NSQIP analysis of 32,171 patients suggests that performing SLNB at the time of implant-based breast reconstruction does not compromise outcomes of the operation.

Keywords: Immediate; implant-based; reconstruction; sentinel lymph node

Category III: Breast Disease Diagnosis and Management

Predictors of Axillary Complete Pathologic response in Hormone Receptor Positive, HER2 Negative Clinically Node-Positive Breast Cancer

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Objective: Neoadjuvant therapy can downstage the axilla, reducing the need for an axillary dissection. In addition, obtaining a complete pathologic response in the axilla is associated with a better 10 year overall survival. Our institution previously reported axillary response rates in hormone positive, human epidermal growth factor receptor 2 (HER2) negative, clinically node-positive breast cancer patients undergoing neoadjuvant therapy in a small cohort of patients. The cohort however was too small for a deeper dive into potential predictors of response. In this current study, we sought to expand this cohort of patients until 2022 almost doubling the number of patients to better evaluate for potential predictors of response.

Materials and Methods: A single-institution retrospective cohort study included hormone receptor-positive, HER2 negative, clinically node-positive breast cancer patients treated with neoadjuvant therapy, either endocrine or chemotherapy, between January 2011 to December 2022. The data was divided in patients with cPR and no cPR in the axilla. The primary outcome was to identify demographic and clinicopathologic parameters that co-related to cPR in the axilla. Chi-square test or Fisher's exact test for categorical variables and t-test for continuous variables were performed. Logistic regression analysis was performed to assess clinical factors associated with the number of complications.

Results: Two hundred breast cancer patients met the inclusion criteria. They were divided into two cohorts: patients with axillary cPR rate 12% (n = 24) and no axillary cPR 88% (n = 176). The mean age was 52.17 [standard deviation 11.5]. The demographic profile of patients, tumor characteristics, and treatment is described in Table 1. Amongst the patients who underwent genomic profile (n = 25), 76% (n = 19) had Mammprint done, while 24% (n = 6) had Oncotype. There were 2 patients with cPR in the axilla who had mammaprint performed, both of which were found to be high risk. For patients who underwent chemotherapy, approximately 13.6% achieved axillary cPR. For patients who underwent hormone therapy, approximately 6.5% achieved axillary cPR (p = 0.29). A significantly higher axillary cPR rate was identified in patients with clinical stage II at diagnosis (14/70, 20%) compared with stage III (10/128, 7.8%; p = 0.013). Patients with axillary cPR had on fewer lymph nodes removed at the time of surgery, 8 *vs.* 16 (p = 0.001).

Conclusion: An axillary cPR in hormone receptor-positive, HER2 negative, clinically node-positive breast cancer patients was higher in those patients with a lower clinical stage (stage II). Patients with a cPR were able to avoid an axillary dissection. A larger cohort of patients is necessary to define more possible predictors of axillary response rate to neoadjuvant therapy.

Keywords: Predictors; complete pathologic response; luminal node positive

Table 1.

	No complete pathologic response (cPR) in axilla (n = 176)	**Complete pathologic response (cPR) in axilla (n = 24)**	***p*-value**
Age	52.5852273 [SD 11.722682]	49.125 [SD 9.71020306]	0.06019888
Menopausal status	Pre-menopausal n = 80 (45.4%) Post-menopausal n = 95 (54 %) Unknown = 1 (0.56%)	Pre-menopausal n = 15 Post-menopausal n = 9	
Race	White n = 43 (24.4%) African American n = 39 (22.15%) Hispanic n = 93 (52.8%) Asian n =1 (0.56%)	White n = 8 African American n = 5 Hispanic n = 11 Asian n = 0	
IDC	158 (89.77%)	23	
ILC	15 (8.5%)		
Others/unknown	3 (1.7%)	1	
Neo-adjuvant treatment			p = 0.29
Chemotherapy	133	21	
Hormone therapy	43	3	
Grade 1	23	4	
Grade 2	98	8	
Grade 3	49	10	p = 0.161
Unknown	6	2	
Stage 0	0	0	
Stage I	0	0	
Stage II	56	14	
Stage III	118	10	p = 0.013
Stage IV	2	0	
Mean number of nodes resected	16.14367816	8.625	p<0.001