

Methods: Nationwide, real time data were used from the Netherlands Cancer Registration (NCR). All women of 18 years and older diagnosed with invasive BC between 2011 and 2021 in the Netherlands were included. Multifocal and multicentric BC are registered by the NCR as the same entity and are both defined in this study as MIBC. The primary endpoint was the trend in type of surgery for MIBC over the years 2011 to 2021. Secondary endpoints were factors influencing the use of BCS in MIBC and overall survival (OS).

Results: We included 147,825 patients: 83% (n = 122,675) had unifocal BC and 17% (n = 25,150) had MIBC. The use of BCS for MIBC increased from 29% in 2011 to 41% in 2021. In total, 2,718 of the MIBC patients underwent BCS (38%) and 4,410 of the MIBC patients were treated with mastectomy (62%) after NST (n = 7,128). In multivariate analyses, younger age, invasive lobular carcinoma, and more advanced clinical tumor- and nodal stage were significantly associated with less frequent BCS, as well as NST. Overall pCR rates were 32% for unifocal BC and 25% for MIBC. In patients with MIBC, pCR was observed in 28% of patients treated with BCS and in 23% of patients that underwent mastectomy. With a median follow-up of 54 months (IQR 27–93) the OS of patients with MIBC was 92% after BCS and 87% after mastectomy (log-rank $p < 0.01$).

Conclusion: This study shows the de-escalation trend in surgical treatment of patients with MIBC over the past ten years with excellent five-years OS.

No conflict of interest.

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finding was consistent within each of the breast molecular subtypes. Therefore, breast molecular subtype should be considered more important than baseline axillary disease extent in axillary treatment strategies in cN+ patients treated with NST to further improve axillary treatment de-escalation.

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209 (PB-116)

Poster

Effect of breast cancer molecular subtype on axillary treatment strategies based on baseline 18F-FDG PET/CT findings

F. Van Amstel¹, C. de Mooij², J. Simons³, C. Mitea⁴, P. Van Diest⁵, P. Nelemans⁶, C. Van der Pol⁷, E. Luiten⁸, L. Koppert⁹, M. Smidt², T. van Nijnatten¹. ¹Maastricht University Medical Centre +, Department of Radiology and Nuclear Medicine, Maastricht, Netherlands; ²Maastricht University Medical Centre+, Department of Surgery, Maastricht, Netherlands; ³Erasmus Medical Centre- Rotterdam, Department of Radiotherapy, Rotterdam, Netherlands; ⁴Maastricht University Medical Centre+, Department of Radiology and Nuclear Medicine, Maastricht, Netherlands; ⁵University Medical Centre Utrecht, Department of Pathology, Utrecht, Netherlands; ⁶Maastricht University Medical Centre+, Department of Epidemiology, Maastricht, Netherlands; ⁷Alrijne Hospital, Department of Surgical Oncology, Leiderdorp, Netherlands; ⁸Amphia Hospital Breda, Department of Surgery, Breda, Netherlands; ⁹Erasmus Medical Centre, Department of Surgical Oncology, Rotterdam, Netherlands

Background: In clinically node-positive (cN+) breast cancer patients treated with neoadjuvant systemic therapy (NST), axillary disease extent on baseline ¹⁸F-FDG PET/CT combined with pathologic axillary response to NST has been proposed to guide axillary treatment de-escalation. Nevertheless, axillary pathologic complete response (pCR) was found to strongly depend on breast molecular subtype. This study aimed to assess whether axillary disease extent on baseline ¹⁸F-FDG PET/CT and breast molecular subtype are predictors for axillary pCR.

Materials and Methods: cN+ patients treated with NST in the prospective Radioactive Iodine Seed placement in the Axilla with Sentinel lymph node biopsy (RISAS) trial (NCT02800317) who underwent ¹⁸F-FDG PET/CT at baseline were included. Baseline ¹⁸F-FDG PET/CT exams were centrally reviewed to differentiate between limited (1–3) and advanced axillary disease (≥ 4 hypermetabolic axillary lymph nodes). After NST, all patients underwent the RISAS-procedure followed by completion axillary lymph node dissection. Axillary pCR rates were stratified by axillary disease extent on baseline ¹⁸F-FDG PET/CT, and subsequently by hormone receptor (HR+)/HER2- HR+/HER2+, HR-/HER2+ and triple negative (TN) molecular subtype.

Results: A total of 185 patients were included: 62.7% with limited and 37.3% with advanced baseline axillary disease. Overall axillary pCR rate was 29.7% (7% for HR+/HER2-, 52.6% for HR+/HER2+, 75% for HR-/HER2+, and 34.1% for TN; $p < 0.001$). Overall and within the molecular subtypes, axillary pCR rates did not significantly differ between limited versus advanced baseline axillary disease. Breast molecular subtype was found to be a significant predictor of axillary pCR, with odds ratios up to 40 for HR-/HER2+ compared to HR+/HER2-.

Conclusions: Axillary pCR rates were not significantly different between limited and advanced axillary disease on baseline ¹⁸F-FDG PET/CT, and this

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Poster

Correlation between radiologic complete response of the breast and axillary pCR in breast cancer patients treated with neoadjuvant systemic therapy – a single center retrospective analysis

F. Van Amstel¹, R. van Mierlo¹, S. Engelen², J. Houwers¹, S. Siesling³, M. Smidt², T. van Nijnatten¹. ¹Maastricht University Medical Centre +, Department of Radiology and Nuclear Medicine, Maastricht, Netherlands; ²Maastricht University Medical Centre +, Department of Surgery, Maastricht, Netherlands; ³Comprehensive Cancer Center the Netherlands, Netherlands Cancer Registry, Utrecht, Netherlands

Background: Previous studies demonstrated a strong correlation between breast- and axillary pathologic complete response (pCR) in breast cancer patients treated with neoadjuvant systemic therapy (NST). This study aimed to assess whether radiologic complete response (rCR) of the breast on imaging (MRI) can predict absence of axillary lymph node metastases (ypN0) in breast cancer patients treated with NST for different cN-status and breast molecular subtypes.

Material and Methods: Patients treated with NST and those who underwent baseline and mid- or post-NST MRI between 2012 and 2020 were retrospectively included from the Netherlands Cancer Registry. Patients were categorized into either radiologic complete response of the breast (breast rCR) or radiologic residual disease (breast non-rCR) and were compared to histopathologic results of surgical specimen. Multivariable regression evaluated clinicopathological variables correlated with ypN0. Odds ratio's (ORs) with 95% confidence intervals (CIs) were calculated.

Results: Of 307 included patients, 27.4% achieved breast rCR. Of these patients, 83.3% had ypN0 compared to 57.8% without breast rCR ($p < 0.001$). Of the clinically node negative (cN0) patients with breast rCR, 89.1% had ypN0 compared to 81.7% without breast rCR ($p = 0.247$). Of the clinically node positive (cN1-3) patients with breast rCR, 76.3% had ypN0 compared to 35.1% without breast rCR ($p < 0.001$). In case of breast rCR, patients with the estrogen receptor (ER)+ subtype were less likely to achieve ypN0 compared to those with HER2+ and triple negative (TN) subtypes (OR: 0.38, 95% CI: 0.06–2.58, $p = 0.032$).

Conclusions: Breast rCR on imaging is significantly associated with ypN0, especially in cN1-3 patients and patients with HER2+ and TN subtypes.

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Poster

The CINDERELLA APPROach: Future Concepts for Patient Empowerment in Breast Cancer Treatment with Artificial Intelligence-Driven Healthcare Platform

T. Schinköthe¹, E.A. Bonci², K.P. Orit³, H. Cruz², R. Di Micco⁴, O. Gentilini⁴, J. Heil⁵, P. Kabata⁶, M. Romariz⁷, T. Gonçalves⁷, H. Martins⁸, B. Ludovica⁹, M. Mika¹⁰, A. Pfob⁵, N. Romem³, G. Silva¹¹, M. Bobowicz¹², M.J. Cardoso². ¹University of the Bundeswehr Munich, Research Center Smart Digital Health, Neubiberg, Germany; ²Champalimau Foundation, Breast Unit-Champalimau Research and Clinical Centre, Lisbon, Portugal; ³Sheba Medical Center, Breast Cancer Radiation Therapy Unit, Ramat Gan, Israel; ⁴San Raffaele University and Research Hospital, Breast Surgery Unit, Milan, Italy; ⁵Heidelberg University Hospital, Department of Obstetrics & Gynecology, Heidelberg, Germany; ⁶Medical University of Gdańsk, Department of Surgical Oncology, Faculty of Medicine, Gdańsk, Poland; ⁷INESC-TEC, Institute for Systems and Computer Engineering, Technology and Science, Porto, Portugal; ⁸ISCTE, Instituto Universitário de Lisboa, Lisbon, Portugal; ⁹SDA Bocconi University, Center for Research on Health

and Social Care Management CERGAS, Milan, Italy; ¹⁰CANKADO, Research, Cologne, Germany; ¹¹Universidade de Lisboa, CEAUL - Centro de Estatística e Aplicações- Faculdade de Ciências, Lisbon, Portugal; ¹²Medical University of Gdańsk; 2nd Division of Radiology, Faculty of Health Sciences with the Institute of Maritime and Tropical Medicine, Gdańsk, Poland

Background: The CINDERELLA trial (NCT05196269) is designed to determine the efficacy of the CINDERELLA APPROach, an innovative cloud-based healthcare platform, in enhancing the shared decision-making process for breast cancer patients facing locoregional treatments. This study evaluates the influence of the Artificial Intelligence (AI)-driven platform on several key aspects: alignment of pre-treatment patients' expectations with post-treatment ones, aesthetic results, patient contentment, body image satisfaction, utilization of health resources, and overall quality of life. A significant challenge encountered was the integration of diverse functionalities into a multi-lingual platform.

Materials and Methods: The CINDERELLA APPROach is integrated with the CANKADO electronic health record (EHR) system. Healthcare providers access the application via the web, while patients use a dedicated smartphone app. The professional portal encompasses comprehensive patient access management, case report form (eCRF) functionalities, patient image management, and a direct link to the BreLO-AI tool (Breast Locoregional Outcome AI system for aesthetic evaluation and prediction). For patients, it provides educational materials and captures electronic Patient-Reported Outcomes (ePRO). The system facilitates randomization and allows study monitors to oversee all participating centers and patient activities in real time. The platform is currently accessible in English, Portuguese, German, Polish, Italian, and Hebrew.

Results: Initiated in August 2023, the study has engaged four out of six centers, enrolling 88 of the intended 1030 patients. Among these, 43 (49%) were assigned to the intervention group, while 45 (51%) were placed in the control group. Patients in the intervention group actively use the smartphone app in four different languages.

Conclusions: The CINDERELLA trial is a pivotal step towards integrating technology with patient care in breast cancer treatment. Preliminary recruitment and engagement data indicate good platform acceptance across multiple languages and cultural contexts. While full results are pending, the potential for the CINDERELLA APPROach to revolutionize patient engagement and treatment optimization in breast cancer care is promising. The trial's completion will provide valuable insights into the role of digital health solutions in improving patient outcomes and streamlining healthcare processes.

Conflict of interest:
Ownership: Timo Schinköthe

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212 (PB-119) Poster
Oncoplastic innovation: immediate prepectoral reconstruction using Braxon® – our experience

E. Marrazzo¹, V. Zanella¹, M.A. Placucci¹, O. Jaber², G. De Salvia², P.A.G. Bisagni¹. ¹Ospedale Maggiore di Lodi, General Surgery, Lodi, Italy; ²Ospedale Maggiore di Lodi, Plastic Surgery, Lodi, Italy

Background: Immediate reconstruction after mastectomy with prepectoral implants associated with acellular dermal matrix (ADM) is a technique that, in recent years, has allowed for sparing the mobilization of the pectoralis major muscle. In this retrospective study we evaluated the outcome of patients undergoing immediate prepectoral reconstruction with ADM.

Material and Methods: The analysis included all patients who underwent nipple-sparing mastectomy and immediate prepectoral ADM breast reconstruction for breast carcinoma between 2020 and 2023. Exclusion criteria for the use of the prepectoral technique included: prior radiation therapy, comorbidities leading to high risk of flap necrosis (such as diabetes, connective tissue diseases and smoking), and the intraoperative surgeon's decision based on evidence of vascular compromise of mastectomy flaps.

Results: Out of 163 patients who underwent mastectomy between 2020 and 2023, 41 patients reconstructed with ADM Braxon® were included in the analysis. Post-operative complications recorded were: 2 instances of skin flap necrosis resulting in subsequent prosthesis removal; 3 cases of skin necrosis near the margins subsequently re-debrided without compromising the reconstruction; 1 resolved seroma with antibiotic therapy; 1 seroma case treated conservatively with subsequent skin necrosis requiring debridement

without the need for prosthesis removal; 1 case of implant infection resolved with intravenous antibiotic therapy. Most complications occurred in 2020 with a decreasing trend during years.

Conclusions: The prepectoral technique has been effective and safe, with a complication rate in line with broader case studies. The reduction in complications over the years is linked to the specialists' learning curve. Patient selection for this type of reconstruction was bound by adequate vascularity and uniform flap thickness, always respecting oncological principles. In an effort to reduce the risk of skin necrosis, we opted to remove the wound flaps used for surgical access.

No conflict of interest.

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213 (PB-120) Poster
Management of Phyllodes tumors: a Dutch population-based retrospective cohort between 1989 and 2022

J. Van Olmen¹, S.A.L. Bartels¹, A.W.J. Beerhuizen¹, E.M. Bekers², A.N. Scholten³, C.A. Drukker¹, M.J.T.F.D. Vrancken Peeters¹, F.H. van Duijnhoven¹. ¹Netherlands Cancer Institute Antoni van Leeuwenhoek Hospital, Surgical Oncology, Amsterdam, Netherlands; ²Netherlands Cancer Institute Antoni van Leeuwenhoek Hospital, Pathology, Amsterdam, Netherlands; ³Netherlands Cancer Institute Antoni van Leeuwenhoek Hospital, Radiotherapy, Amsterdam, Netherlands

Background: Phyllodes tumors (PT) are rare tumors of the breast. Controversy about the optimal treatment for PT remains. The aim of our study is to analyze patterns in treatment and outcome in a population-based series of patients with benign, borderline and malignant PT.

Material and Methods: We performed a retrospective analysis of data on all patients from 1989 to 2022 with a benign, borderline or malignant PT extracted from the Dutch nationwide pathology databank (Paiga). For borderline and malignant PT patients data were extracted from the Netherlands Cancer Registry as well. Cumulative incidence rates of local recurrence and of distant metastasis were estimated using the one minus Kaplan-Meier estimator. A multivariable cox regression analysis was performed to evaluate the relationship between possible risk factors and local recurrence. For the multivariable cox regression analysis borderline and malignant PT were combined.

Results: We included 2829 patients (benign PT n = 1908, borderline PT n = 452 and malignant PT n = 469). Benign and borderline PT patients more often had breast-conserving surgery (BCS) as final surgery (95% vs. 81 vs. 46%). In malignant PT adjuvant radiotherapy was administered in 14.7%; this rate increased over time (OR: 1.07 per year, 95%CI 1.02–1.13, P = 0.012).

The 5-year cumulative incidence of local recurrence was 5.2% (95% CI: 4.1–6.3) for benign PT, 8.7% (95%CI 6.0–11.4) for borderline PT and 11.7% (95%CI 8.6–14.8) for malignant PT.

For benign PT, local recurrence was related to positive margins (HR: 2.3, 95%CI: 1.3–4.7, p = 0.007). In case of positive margins the 5-year cumulative incidence remained low: 7.5% (95%CI: 4.6–10.4).

In patients with malignant or borderline PT, local recurrence was related to tumor size ≥ 20 mm (HR: 10.6, 95%CI: 1.5–76.8, p < 0.001) and positive margins (HR: 3.4, 95%CI: 1.8–6.2, p < 0.001), but not to negative margin width (HR: 1.4, 95%CI: 0.8–2.5, p = 0.350). The 5-year cumulative incidence of local recurrence in borderline and malignant PT in case of positive margins was high: 15% (9.7–20.3).

Distant metastasis occurred only in malignant PT with a 5-year cumulative incidence of 4.7% (95%CI 3.3–6.1).

Conclusion: In patients with benign PT local recurrence was related to positive margins. However, as local recurrence rates remained low in case of positive margins, there is no indication for re-excision in case of positive resection margins.

In patients with borderline or malignant PT we identified BCS, larger tumor size and positive final margins as risk factors for local recurrence. As margin width did not influence recurrence rate, any negative margins should be accepted.

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