

112P Patients' knowledge about ductal carcinoma in situ

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Background: Ductal carcinoma in situ (DCIS) can progress to invasive breast cancer, but not all lesions will do so. It is not yet possible to accurately determine at diagnosis which lesions will progress if left untreated. Therefore, all women diagnosed with DCIS undergo surgery with/without radiotherapy. To reduce overtreatment of low-risk DCIS patients, the safety of active surveillance via yearly mammographic screening as an alternative to the standard treatments for low-risk DCIS is being investigated. In the LORD patient preference trial, patients are given a choice between surgery with/without radiotherapy and active surveillance. This can be a difficult decision to make, and it is important for patients to make an informed choice. We investigated DCIS knowledge of women participating in the LORD trial.

Methods: We used baseline questionnaire data from the LORD patient preference trial, which was completed after women had been informed about their diagnosis and had discussed the treatment choices with their oncologist. The knowledge questionnaire consisted of 7 statements based on the items developed by Parikh et al. Participants were asked to indicate for each statement whether it was correct. Mann-Whitney tests were used to test for associations.

Results: We included 200 patients (median age at diagnosis 59 years (range: 45-77 years)) in these analyses. Most women had an intermediate or high educational level (84%). Overall, 34% of participants answered at least 4 out of 7 knowledge questions correctly. Of all participants, 19% -incorrectly- thought that DCIS could metastasize to organs outside the breast, 31% were not aware that, if left untreated, DCIS can progress to invasive breast cancer, 79% -incorrectly- indicated that DCIS can always be seen on mammogram, and 93% -incorrectly- indicated that progression can always be detected before it becomes too extensive. DCIS knowledge was not associated with patients' educational level ($p = .840$).

Conclusions: There are clear gaps in patients' knowledge about DCIS. Participants seem to have a high level of trust in mammographic screening and struggled with the knowledge questions that might have been perceived as challenging that belief. There is a clear need for a patient decision aid to promote informed decision making.

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113P Axillary lymph node management in early breast cancer patients with positive sentinel lymph node: A systematic review and meta-analysis of randomized trials

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Background: Omitting axillary lymph node dissection (ALND) in patients with early breast cancer and 1 or 2 positive sentinel lymph nodes (SLNs) is still debated especially in those undergoing mastectomy. We aim to provide updated evidence on this topic.

Methods: This is a systematic review and meta-analysis of randomized trials evaluating the omission of ALND in patients with positive SLN. Included studies compared ALND vs. no ALND in breast cancer patients with tumors ≤ 5 cm and up to 2 metastatic SLNs. In the no ALND group, patients could receive sentinel lymph node dissection (SLND) only or SLND and complementary axillary radiotherapy (SLND + AR).

We assessed differences in overall survival (OS), disease free survival (DFS), axillary recurrence rate (ARR) and surgical outcomes (lymphoedema and neuropathy) in ALND vs. SLND alone group and ALND vs. SLND + AR group. Pooled hazard ratios (HRs) and odds ratios (ORs) with 95% confidence intervals (CIs) were calculated using random effects models.

Results: Of 3,638 identified records, 7 (6 studies) were included in our meta-analysis. All six studies were randomized non-inferiority trials with a total of 4789 included patients. Four trials evaluated ALND compared to SLND alone (N=2890). By hypothesizing a non-inferiority margin of 1.25 in survival endpoints, we found that SLND alone is non-inferior to ALND in both OS (HR 0.81, 95% CI 0.62-1.05) and DFS (HR 0.91, 95% CI 0.75-1.09). However, the non-inferiority could not be demonstrated for ARR (HR 1.18, 95% CI 0.64-2.15). Compared to ALND, SLND alone resulted in lower incidence of lymphoedema (OR 0.35, 95% CI 0.15-0.81) but no significant reduction in neuropathy (OR 0.31, 95% CI 0.08-1.22). Two trials compared ALND versus SLND + AR (N=1899). In this comparison, the non-inferiority of SLND + AR could not be demonstrated in OS (HR 0.90, 95% CI 0.52-1.58), DFS (HR 0.99, 95% CI 0.66-1.49) and ARR (HR 1.35, 95% CI 0.63-2.89).

Conclusions: SLND is non-inferior compared to ALND in terms of OS and DFS, with lower rates of post-surgical lymphoedema. SLND + AR could be inferior compared to ALND in the survival endpoints evaluated. We were not able to perform subgroup analysis on patients undergoing breast conserving surgery or mastectomy.

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114P Axillary management in elderly women (≥ 70 years) with breast cancer: 10-years follow-up

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Background: The risk of developing Breast Cancer (BC) increases with age with half of all cases of new onset BC occurring in women older than 65 years of age, and more than 30% occurring after the age of 75 years. Breast surgery is a safe procedure with clear oncological benefit recommended for elderly patients, indeed axillary management is not routinely recommended for these elderly patients. This study evaluated axillary surgery (AS) trends over a 10-year follow-up period as well as locoregional and survival outcomes for elderly woman.

Methods: Information regarding 1.748 consecutive elderly patients (range age 70-84 years old) operated for a first primary invasive BC at the European Institute of Oncology between 1994 and 2008, were selected and divided in two groups, depending on whether or not AS was performed. A (1:1) matched analysis for all relevant clinicopathological features was performed. Outcomes were analyzed using the Kaplan Meier method and univariate Cox-proportional hazard ratio analysis.

Results: A total of 1.748 patients were identified and stratified by age (70-74, 75-79, 80-84). A matched analysis was performed for 252 patients: 122 who underwent AS and 122 who did not. At 10-year follow-up, ipsilateral breast tumor recurrence, distant metastasis and contralateral BC were similar, $p < 0.83$, $p < 0.42$ and $p < 0.28$, respectively. In the no-AS group, a significant increased risk of axillary lymphnode recurrence was identified at 5- and confirmed at 10-years ($p < 0.038$), without impact on overall survival at 5- and 10-years ($p < 0.52$). In the non-AS group, higher rate of axillary recurrence at 10-years was observed in patients with poorly differentiated (24.1%, 95% CI 7.2-46.2), highly proliferative (Ki67 20%: 17.1%, 95% CI 0.6-33.3) and luminal B tumors (16.8%, 95% CI 5.9-35.5).

Conclusions: Axillary staging in elderly women does not impact long-term survival. Tailoring surgery according to tumor biology and age may improve locoregional outcome.

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115P Geriatric breast cancer: Does age matter?

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Background: The management of breast cancer in elderly patients poses a complex array of challenges due to comorbid illnesses, poor functional status, social issues. There is a paucity of breast cancer data in geriatric patients from developing countries.

Methods: We analyzed the prospectively maintained, computerized breast cancer patient database in the department of surgical oncology. We included the breast cancer patients treated from January 1994 to December 2019. We considered the age at diagnosis of greater than or equal to 65 years to define Geriatric breast cancer (GBC) and analyzed the demography, clinical presentation, stage, histology, molecular subtypes, treatment details, survival outcomes and relapse patterns in these patients.

Results: We identified 4628 breast cancer patients treated during the study period. Of them, 499 (10.78%) were Geriatric breast cancer patients. The mean age in this subset was 70.10 years, and 96.99% of patients were females. 330 patients (66.13%) were between 65 to 70 years, and 3.0% were above 80 years. 49.8% presented with early breast cancer and 4.6% had stage IV disease. Infiltrative ductal carcinoma was the most common histological subtype (88.7%). 41.4% of patients had luminal-A molecular subtype and 20% were triple-negative. The majority (84.0%) of patients underwent surgery first, mostly mastectomy and the breast conservation rate was 8.6%. The chemotherapy utilization rate was 28.2%, while 32.4% of patients received adjuvant radiotherapy. All luminal subtype patients received adjuvant hormonal therapy. Overall relapse rate was 16.2% (loco-regional relapse-6.2%; systemic relapse-10%). The most common site of systemic recurrence was bone, followed by lung, liver and brain. The 5-year overall survival (OS) and 5-year disease-free survival was 79.8% and 70.8%, respectively.

Conclusions: Geriatric breast cancer comprised 10.7% of all breast cancers in the current study. Most patients presented between 65-70 years and mainly underwent an upfront mastectomy. With meticulous management in a multi-disciplinary setting, a 5-year OS of 79.8% can be achieved.

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116P Robustness evaluation of VMAT by robust optimization and manual flash approach for breast cancer radiotherapy

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Background: The importance of including skin flash in planning strategies for volumetric modulated arc therapy (VMAT) of breast cancer has been proposed by various researchers in the past few years. Recently, the robust planning concept from proton therapy had also incorporated in photon radiotherapy. This may provide a wider scope to deal with uncertainties. This study aimed to compare the conventional manual skin flash (MF) approach with the novel robust optimization (RO) approach in terms of robustness in VMAT for breast cancer.

Methods: 15 breath-hold VMAT plans of breast cancer (7 right, 8 left) using MF approach were retrospectively replanned using RO approach. The original plans consist of 5 split-field quarter arcs and were optimized based on the Planning Target Volume (PTV). The MF of original plans was created as a tissue-equivalent bolus and extended in anterior and lateral directions by 2cm from skin together with a pseudo-PTV. MF was included in optimization but were removed before dose calculation. So that the resulting leaves edge are opened outside of the body contour to avoid dramatic dose missed in the skin surface. The newly re-computed RO plans were optimized with 10mm motion uncertainty in all direction and 2% density uncertainty (total 28 scenarios) based on the Clinical Target Volume (CTV). The robustness evaluation was done by simulate organ motion tool, the combination of shifting directions and distances were set by a random number generator but the max. magnitude was set at 10 mm. Plans were recalculated on deformed CT and deformed CTV. The dose characteristics were evaluated.

Results: RO plans were generally more robust than MF plans. The differences of CTV V95% between RO plan and nominal dose were generally limited to 10% in most of the simulate organ motion calculations (compare to 20% in MF plan). The difference become more apparent after shifting magnitude reached 8 mm in both anterior and lateral directions. The maximum difference of RO plan and MF plan between nominal plan reached 16.5% and 25.3% respectively in the worst simulation scenarios.

Conclusions: VMAT plan of breast cancer with robust optimization was found to be more resistant to motion uncertainty in target volume coverage compared to the conventional MF approach.

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117P Oncological outcomes of chest wall perforator flap reconstruction in breast cancer

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Background: Chest wall perforator flaps (CWPF) have become popular over the years for reconstruction of breast conserving surgery (BCS) defects in breast cancer patients. We audited the oncological outcomes of CWPF done at our hospital.

Methods: Patients who underwent BCS and partial breast reconstruction with a CWPF from July-2016 to June-2021 were included in the study. All patient related and disease specific details were obtained from the prospectively collected database. Patient demographics such as age, Body mass index (BMI) and co-morbidities were documented along with tumour characteristics, details of treatment received, rates of margin re-excision and recurrence pattern. The median follow-up for this cohort was 23 months (4–61 months). The study was registered and approved by the local Clinical Governance department (CA12119).

Results: A total of 152 patients underwent CWPF reconstructions from July 2016 to June 2021. The median age of patients in the cohort was 56 years (range 31-81 years). The median BMI was 27kg/m² (19.9-45.02). Fifty-nine patients were diagnosed with cancer through the National Health Services Breast Screening Program (NHSBSP) and 92 presented to the clinic with symptoms. One patient developed recurrent DCIS in a year and underwent mastectomy with reconstruction. Seven (4.60%) patients developed distant metastases. Five (71.43%) of them were TNBC and two (28.57%) were ER-positive, HER2-negative cancers. Of these, 3 patients (42.86%) had node-positive disease.

Conclusions: CWPF is oncologically safe option for reconstruction of BCS defects and has similar oncological outcome to standard BCS reported in literature.

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118P CD146 interaction with integrin $\beta 1$ activates LATS1-YAP signaling and provokes the radiation-resistance in breast cancer cells

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Background: Radiotherapy (RT) plays a pivotal role in the standard regional therapy for breast cancer; however, intrinsic or acquired resistance to radiotherapy, a barrier to yield clinical benefit, can be one of the main reasons of local recurrence or even leading to distant metastasis. Our previous work found that CD146, a transmembrane receptor protein, implicated in the acquisition of radio-resistance. However, the specific mechanism by which CD146 interacts with YAP signaling pathway and induces DNA damage response and radio-resistance remains unknown. Our study aims to investigate the regulatory mechanism of CD146/LATS1/YAP axis and clarify its regulatory role in the process of radio-resistance.

Methods: DNA damage response in breast cancer cells were induced by exposing cells to irradiation or carboplatin. CD146 knock-out cells were generated by CRISPR/Cas9. CD146 over-expression was generated by pLVX-CD146 lentivirus infection. Protein or mRNA expression was determined by western blotting, immunofluorescence, and qRT-PCR. Protein-protein interaction was analyzed by Co-IP and mass spectrum. Xenograft assay was generated by mammary fat pad model in Nu-Nu mice.

Results: We found that endogenous CD146 was significantly activated in MDA-MB-231 cells after radiotherapy. Cell line model and xenograft assays showed that CD146