



Abstracts for oral presentation at the Association of Breast Surgery Conference, 13th & 14th May 2019, SEC Glasgow

01. THE EFFECT OF TUMOUR RISK AND PATIENT FACTORS ON THE THREE-YEAR SURVIVAL FOR WOMEN WITH EARLY STAGE TRIPLE NEGATIVE BREAST CANCER (TNBC) IN ENGLAND AND WALES: A POPULATION BASED COHORT STUDY WITHIN NATIONAL AUDIT OF BREAST CANCER IN OLDER PATIENTS (NABCOP)

Yasmin Jauhari¹, Melissa Gannon², Kieran Horgan³, David Dodwell⁴, Jibby Medina¹, Karen Clements⁵, David Cromwell^{1,2}. ¹Clinical Effectiveness Unit, Royal College of Surgeons of England, London, United Kingdom; ²Department of Health Services Research & Policy, London School of Hygiene & Tropical Medicine, London, United Kingdom; ³Leeds Teaching Hospitals NHS Trust, Leeds, United Kingdom; ⁴Nuffield Department of Population Health, University of Oxford, Oxford, United Kingdom; ⁵Public Health England, Birmingham, United Kingdom

Introduction: Women with triple negative breast cancer (TNBC) have high risk of early mortality. We investigated factors influencing BC-survival for women with surgically treated TNBC, as part of NABCOP.

Methods: Women aged ≥ 50 yrs receiving surgery for unilateral early stage (1-3a) TNBC in England and Wales between 2014–2017 were identified from linked national datasets. Competing risks survival models were used to investigate associations between patient fitness (comorbidity), tumour characteristics and BC survival at 3-years.

Results: 97% of 3,785 women aged 50-69 yrs and 92% of 2,254 women aged ≥ 70 yrs received surgery.

For women aged 60, 70 and 80 yrs, with stage 1 TNBC and no comorbidities, 3%, 3% and 4% respectively had died from BC at 3-years, increasing to 15%, 18% and 22% respectively for stage 3a TNBC. Death from causes other than BC at 3-years was reported for <7% of women without comorbidities.

In comparison, the increase in rate of death from any cause among women with ≥ 2 comorbidities was mainly due to death from causes other than BC. For women aged 60, 70 and 80 yrs with stage 1 TNBC, death from any cause at 3-years was 8%, 12% and 20% respectively; increasing to 23%, 31% and 43% respectively for stage 3a TNBC.

Conclusion: Tumour stage and not older age mainly determined death from BC at 3-years in fit women. In women with poor fitness, death from any cause at 3-years was higher in older women. Fitness assessments are recommended in identifying older women who may benefit from the most active interventions.

02. DEVELOPMENT OF AN END-PRODUCT EVALUATION TOOL FOR ASSESSMENT OF SIMULATED AXILLARY CLEARANCE

Keerthini Muthuswamy¹, Rebecca Fisher¹, Fotis Petrou¹, Stella Mavroveli¹, George Hanna¹, Dimitri Hadjiminias², Paul Thiruchelvam², Daniel Leff^{1,2}. ¹Department of BioSurgery and Surgical Technology, Imperial College London, London, United Kingdom; ²The Breast Unit, Charing Cross Hospital, London, United Kingdom

Introduction: Axillary de-escalation and omission of axillary lymph node dissection (ALND) in patients with low volume sentinel node disease has reduced trainee exposure and confidence. The concern is to equip surgeons to tackle complex axillary disease. An ALND simulator was developed and an end-product assessment tool was interrogated for construct validity.

Methods: Following ethical approval (IRAS:226651), 30 surgeons (10xconsultants, 11xtrainees, 9xcore/FY) performed a simulated level III ALND with junior assistance. An end-product assessment tool was developed using an iterative process with experts in the field. Simulated ALND models and resection specimens were retrospectively reviewed and scored against the end-product assessment tool by two consultant surgeons.

Results: End-product scores differed significantly based on expertise ($p=.038$). Specifically, experts outperformed novices [median(IQR):expert=5(5)vs.novice=3(1); $p=.037$], trainees outperformed novices [median(IQR):expert=5.5(4)vs.novice=3(1); $p=.022$]. However, no significant difference was observed between trainees and experts ($p=.939$). Similarly, nodal harvest was significantly greater amongst experts than novices ($p=.000$), and trainees than novices ($p=.009$), but not between experts and trainees ($p=.463$). No significant difference was observed between groups in haemostatic quality ($p=.093$), or damage to the axillary vein ($p=.864$), long thoracic nerve ($p=.094$), or thoracodorsal pedicle ($p=.054$).

Conclusions: An end product assessment tool developed for ALND distinguishes between surgeons of low and high volume experience. This is the first tool to assess competence in ALND and merits further validation. It is important to examine how the tool could better delineate differences between trainees and expert cancer surgeons.

03. IMPACT OF PROGESTERONE RECEPTOR STATUS ON ONCOLOGICAL OUTCOMES IN OESTROGEN RECEPTOR POSITIVE BREAST CANCER PATIENTS – A SYSTEMATIC REVIEW AND META-ANALYSIS

Michael Boland¹, Eanna Ryan¹, Emma Dunne¹, Nikita Bhatt¹, Aoife J. Lowery². ¹RCSI, Dublin, Ireland; ²Discipline of Surgery, Lambe Institute for Translational Research, NUIG, Galway, Ireland

Introduction: Assessment of oestrogen (ER) and progesterone receptor (PR) status provides important prognostic information in breast cancer. However, the impact of single progesterone receptor negativity is less well defined. A systematic review/meta-analysis were undertaken to examine the impact of progesterone receptor negativity on outcomes in oestrogen receptor positive breast cancer.

Methods: The study was performed according to PRISMA guidelines. Databases were searched to identify studies comparing disease free survival as the primary outcome and overall survival as the secondary outcome between progesterone receptor positive (PR+) and negative (PR-) status in ER positive breast cancer (ER+). A meta-analysis of time-to-effect measures was performed, specifically hazard ratios (HRs).

Results: Seven studies including 10613 patients in the ER+PR+ group and 2371 patients in the ER+PR- group met the inclusion criteria. Treatment characteristics did not differ significantly between the two groups. Patients in the ER+PR- group had a higher risk of disease recurrence over the study time period than those who had ER+PR+ disease (DFS HR 1.57; 95% confidence interval [CI]: 1.30 – 1.80; $p < 0.01$) and was more significant in patients who were HER2 negative (DFS HR 1.63; 95% confidence interval [CI]: 1.34 – 1.98; $p < 0.01$). A similar result was observed for overall survival (OS HR 1.60; 95% CI: 1.19 – 2.14, $p < 0.01$).

Conclusion: Progesterone receptor negativity is associated with a significant reduction in disease free and overall survival in ER+ patients. This has

implications for treatment and surveillance in these patients.

04. POST-MASTECTOMY RADIOTHERAPY IN PATIENTS WITH IMMEDIATE BREAST RECONSTRUCTION – RESULTS FROM THE IBRA-2 (IMMEDIATE BREAST RECONSTRUCTION AND ADJUVANT THERAPY) PROSPECTIVE COHORT STUDY

Tim Rattay¹, Rachel O'Connell², Rajiv Dave³, Matthew Gardiner⁴, Adam Trickey⁵, Chris Holcombe⁶, Shelley Potter⁵, On behalf of the Breast Reconstruction Research Collaborative. ¹University of Leicester, Leicester, United Kingdom; ²Royal Marsden NHS Foundation Trust, London, United Kingdom; ³Manchester University NHS Foundation Trust, Manchester, United Kingdom; ⁴University of Oxford, Oxford, United Kingdom; ⁵University of Bristol, Bristol, United Kingdom; ⁶Royal Liverpool and Broadgreen Hospitals NHS Trust, Liverpool, United Kingdom

Introduction: Long-term data now indicates that post-mastectomy radiotherapy (PMRT) may positively impact on overall survival. As a result, the indications for PMRT are widening. Rates of immediate breast reconstruction (IBR) are increasing, but IBR remains controversial in the context of planned PMRT. The aim of this study was to examine current practice of PMRT in patients undergoing mastectomy with and without IBR in the iBRA-2 prospective cohort study.

Methods: The cohort included 2,540 patients undergoing mastectomy +/- IBR at 76 centres across the United Kingdom and Ireland between 1st July and 31st December 2016. Patients were recruited consecutively using the trainee collaborative model. Patient demographics, operative, oncological and adjuvant treatment data were collected and analysed comparing rates of PMRT in patients undergoing mastectomy +/- IBR.

Results: Of all patients in the cohort, 35.6% (n=909) were recommended for PMRT at the post-operative MDT meeting. In 4.9% (n=125) discussion of PMRT was advised. PMRT was significantly less likely to be recommended in patients undergoing IBR (32.1% of implant-only, 34.3% of pedicled flap, and 35.5% of free flap reconstructions) than in patients undergoing mastectomy alone (45.7%) (p<0.001).

On multivariate analysis, only implant-based reconstruction was inversely associated with PMRT (Odds ratio=0.66, confidence interval 0.44-0.99). Patients in Scotland (OR 0.35, 0.17-0.73) and Ireland (OR 0.36, 0.17-0.74) were statistically less likely to receive PMRT.

Conclusions: Approximately one third of patients undergoing IBR were recommended for PMRT with only implant-based reconstructions less likely to receive PMRT. This study also highlighted regional variation in PMRT practice which merits further investigation.

05. BRIDGING THE AGE GAP IN BREAST CANCER - ANALYSIS OF THE IMPACT OF COMORBIDITY, DEMENTIA AND FRAILTY ON THE RATES OF SURGERY IN OLDER WOMEN

Jenna Morgan¹, Jayan George¹, Sue Ward², Geoff Holmes², Maria Burton³, Tim Chater⁴, Mike Bradburn⁴, Charlene Martin¹, Anne Shrestha¹, Kwok-Leung Cheung⁵, Riccardo Audisio⁶, Malcolm Reed⁷, Lynda Wyld¹. ¹Department of Oncology and Metabolism, Sheffield Medical School, University of Sheffield, Sheffield, United Kingdom; ²Department of Health Economics and Decision Science, SCHARR, University of Sheffield, Sheffield, United Kingdom; ³Department of Health and Social Care, Sheffield Hallam University, Sheffield, United Kingdom; ⁴Clinical Trials Research Unit, SCHARR, University of Sheffield, Sheffield, United Kingdom; ⁵Faculty of Medicine & Health Sciences, University of Nottingham, Nottingham, United Kingdom; ⁶Sahlgrenska University Hospital, Gothenburg, Gothenburg, Sweden; ⁷Brighton and Sussex Medical School, University of Sussex, Brighton, United Kingdom

Background: Up to 40% of UK women >70 years with primary operable breast cancer are treated with Primary Endocrine Therapy (PET) rather than surgery, often due to co-existing co-morbidity or frailty. Factors predicting non-surgical treatment were assessed in a large prospective UK cohort study.

Methods: Prospective data from the multi-centre UK cohort study "Bridging the Age Gap" on treatment received (Surgery vs. PET) were analysed according to comorbidity (modified Charlson), dementia (MMSE) and frailty (ADL and IADL) using Chi Squared test in SPSS. National and

local ethics committee approval was obtained for all UK participating sites. **Results:** A total of 3460 women aged >70 years with operable breast cancer were recruited; 2784 were treated surgically and 493 received PET. Older age was associated with increased PET; with 4.0% of 70-74 year olds treated this way, compared to 49% of those 85+ (p<0.001). Increasing comorbidity was associated with greater PET usage; with 4.0% of patients with no comorbidity being treated with PET, rising to 31.9% for patients with 3+ comorbidities (p<0.001). A MMSE score of <27 was associated with an increased PET rate (24.2% vs 9.8% in those who scored 27+, p<0.001). Dependency in one or more ADL or IADL was associated with increased use of PET (8.7% vs 27.2% for ADL (p<0.001) and 7.1% vs 31.9% for IADL (p<0.001).

Conclusions: This analysis clearly demonstrates that extreme old age, comorbidity, dementia and frailty are important factors in determining treatment for older women diagnosed with operable breast cancer in the UK.

06. IMPACT OF PROGESTERONE RECEPTOR STATUS ON RESPONSE TO NEOADJUVANT CHEMOTHERAPY IN OESTROGEN RECEPTOR POSITIVE BREAST CANCER PATIENTS

Michael R. Boland¹, Darina Gilroy¹, Timothy Nugent¹, John Kennedy², Dhaffir Alazawi¹, Terence J. Boyle¹, Elizabeth M. Connolly¹. ¹Department of Breast Surgery, St James Hospital, Dublin, Ireland; ²Department of Breast Oncology, St James Hospital, Dublin, Ireland

Introduction: Breast cancer patients respond differently to neoadjuvant chemotherapy (NAC) based on hormone receptor subtype. Oestrogen receptor positive/HER-2 receptor negative (ER+HER-) patients respond poorest but effects of progesterone receptor (PR) status on response within this group has not been elucidated. The aim was to assess the impact of PR status on response to NAC in ER+HER- patients.

Methods: Patients receiving NAC over a seven-year period (2011-2017) were identified from a prospective database within a specialised breast unit. Clinicopathological details were collated for all patients. Primary outcomes including breast complete pathological response (PCR) rate and axillary PCR rate were compared between patients found to be progesterone receptor positive and negative. Secondary outcomes including grade and presence of lymphovascular invasion were also assessed.

Results: 206 patients were identified (151 in the ER+PR+HER- group and 55 in the ER+PR-HER- group). When compared with the PR+ group, patients found to be PR negative were more likely to achieve a breast PCR (3.3% vs 25.4%; Chi Square test; p=0.001). In patients who were initially node positive, PR negativity was associated with a higher rate of axillary nodal PCR compared to those found to be PR positive (12.2% vs 25.5%; Chi Square test; p=0.04). ER+PR-HER- patients were more likely to have higher grade tumours but not LVI.

Conclusion: Over a quarter of ER+HER- patients who are PR negative will have a complete pathological response to NAC in the breast and axilla and should be considered for NAC at diagnosis.

07. A SYSTEMATIC REVIEW AND META-ANALYSIS OF CLINICAL, PATIENT-REPORTED OUTCOMES AND COST OF DIEP FLAP VERSUS IMPLANT-BASED BREAST RECONSTRUCTION

Ankur Khajuria^{1,2}, Max Prokopenko³, Oliver Smith³, Max Greenfield³, Andrea Pusic⁴, Afshin Mosahebi³. ¹Kellogg College, University of Oxford, Oxford, United Kingdom; ²Department of Surgery and Cancer, Imperial College London, London, United Kingdom; ³Division of Surgery and Interventional Science, University College London, London, United Kingdom; ⁴Patient-Reported Value and Experience (PROVE) Centre, Harvard Medical School, Boston, USA

Introduction: Comparative data on clinical outcomes and cost of DIEP and implant-based reconstruction (IBR) is limited. We conducted a systematic review to compare cost, clinical and patient-reported outcomes (PROs).

Methods: The protocol was registered on PROSPERO (CRD42017072557) a priori. EMBASE, MEDLINE, Google Scholar, CENTRAL, SCI and Clinicaltrials.gov were searched from January 1994–August 2018. Two reviewers independently screened and extracted outcomes on complications, cost