

examination. Micro was defined as tumour deposit between 0.2mm and 2mm and macro over 2mm on histology.

**Results:** 230 of 1255 patients (18%) proceeded to immediate AC and were spared a second operation. 183 patients (80%) were macro and 47 (20%) micro on Metasin. 9 of 1255 patients (0.7%) underwent a delayed AC as histology of SLNs showed macro. Out of these, 4 were negative and 5 were micro on Metasin. 38 of 43 Metasin micro patients (88%) were spared an axillary clearance.

Correlation of Metasin vs histology - immediate ACs

Histology	Negative	Positivity in SLNs ONLY	Positivity in at least ONE N-SLNs	Total
Metasin				
Macrometastasis	43 (23.5%)	98 (53.5%)	42 (23%)	183
Micrometastasis	37 (78.7%)	8 (17%, micro)	2 (4.3%, micro)	47
Total	80	106	44	230

**Conclusions:** Differentiating between macro and micro helps decide appropriate surgical management of the axilla. Fewer patients with Metasin macro should have AC. Patients with Metasin micro should not have AC.

#### P004. INTRAOPERATIVE ASSESSMENT OF SENTINEL NODES IN MASTECTOMY PATIENTS

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**Introduction:** Intraoperative sentinel node assessment was routinely offered to patients undergoing curative breast surgery with negative preoperative nodal status. Our previous audit showed 34% patients undergoing mastectomy had positive OSNA results. Axillary radiotherapy is now increasingly being offered to node positive patients with one or two positive sentinel nodes. The aim of this audit was to assess the rate of positive sentinel nodes in patients undergoing mastectomy.

**Methods:** A retrospective audit of patients who underwent mastectomy from January 2015 to December 2017 was carried out. Mastectomy patients were identified from the Somerset Cancer Database, operative details and axillary treatment was recorded from the electronic patients record and analysed.

**Results:** Of the 461 patients who underwent mastectomy, 183 patients underwent sentinel node biopsy and OSNA. Amongst the OSNA group, thirty five patients (19%) had positive sentinel node and underwent axillary clearance. Seventy one percent of these patients had only one or two positive nodes on final histology where axillary surgery could be avoided. On an average, only 3 patients per annum had more than 2 involved nodes on final histology who would benefit from further axillary treatment.

**Conclusion:** Majority of patients with OSNA detected positive sentinel nodes had low nodal disease burden which could be easily managed with radiotherapy rather than axillary clearance.

#### P005. AXILLARY RADIOTHERAPY IS NON INFERIOR TO COMPLETION AXILLARY CLEARANCE IN PATIENTS WITH POSITIVE SENTINEL LYMPH NODE BIOPSY - A SINGLE-CENTRE OBSERVATIONAL COHORT STUDY

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**Introduction:** A decade ago, gold standard treatment for patients with a positive sentinel lymph node biopsy (SLNB) was completion axillary node clearance (cANC). Recently, this practice has been challenged, with several studies showing comparable outcomes following axillary radiotherapy or systemic treatment for limited nodal disease. Results of trials such as POSNOC are awaited. Our aim was to study outcomes of SLNB-positive patients treated with or without cANC or in our unit.

**Methods:** This is an observational cohort study of all SLNB-positive patients treated for invasive breast cancer at a single centre between 2010-

2012. Data were collected retrospectively from patient records. Primary outcomes were axillary recurrence (AR), overall survival (OS) and disease-free survival (DFS).

**Results:** Of 289 patients, n=129 patients proceeded to ANC (cANC group). N=160 did not undergo ANC (noANC group), of whom 91.2% had radiotherapy to the axilla. Median follow up was 76 months (IQR=69-87). AR was 1.6% in the cANC group and 1.9% in the noANC group (p=0.83). Kaplan-Meier analysis demonstrated that OS did not differ significantly between groups (cANC: 81.4%, noANC: 86.2%, p=0.26) and neither did DFS (cANC: 85.3%, noANC: 93.8%, p=0.12). There was no significant difference in the proportion of Grade 2 or 3 cancers and ER-/Her2+ tumours.

**Conclusion:** In our cohort, outcome following axillary irradiation was non-inferior to cANC in terms of AR, OS and DFS at 6 years. While the groups were not matched in terms of prognostic factors, this study provides encouraging real-life data to support further research into more conservative axillary treatment.

#### P006. DOES THE TOTAL TUMOUR LOAD (TTL) AS DETECTED BY ONE STEP NUCLEIC ACID AMPLIFICATION (OSNA) PREDICT NON SENTINEL NODE POSITIVITY?

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**Introduction:** It has been suggested that TTL can be used to predict non-sentinel node positivity in breast cancer by dividing patients into low (TTL<2.5x10<sup>4</sup>) and high risk categories (TTL>2.5x10<sup>4</sup>). This is of increasing relevance as there is a move to more conservative axillary treatment in the post ACOSOG Z0011 era. Our objective was to test this theory for validity.

**Methods:** A retrospective review of all OSNA cases performed in Glan Clwyd Hospital since 2015. Data collection included patient and tumour demographics, sentinel node results, total tumour load, non sentinel node involvement.

**Results:** Eighty four OSNA procedures carried out on 80 patients, mean age 62 years. Tumour type 53(63%) IDC, 9(12%) ILC, 6(7%) Tubular, 3(4%) DCIS, 10(13%) others. Tumour grade 1 8(9%), grade 2 37(44%), grade 3 36(43%), in-situ 3(4%). Mean invasive size 25.7mm. Er positive 60(71%), negative 22(26%), unknown 3(4%); Pr positive 51(60%), negative 31(36%), unknown 3(4%); Her2 enriched 8(9%). Mean number sentinel nodes harvested 1.6 (range1-4); 20 patients had micrometastases, 21 patients had macrometastases, 19 patients had ANC. At ANC mean nodes excised 9.1(range5-14). TTL mean score 635076(range 260-5994620; median 10900). Non-sentinel node involvement in 47% of ANC cohort. Non-sentinel node involvement was seen in two thirds (66.6%) of high risk patients (TTL>2.5x10<sup>4</sup>) as opposed to only 30% of those deemed low risk (p<0.000001).

**Conclusions:** TTL identified a high risk population in our cohort. We propose a multicentre study to confirm the findings.

#### P007. RADIOLOGICAL VERSUS PATHOLOGICAL RESPONSE OF THE AXILLA TO NEOADJUVANT CHEMOTHERAPY: ASSESSING THE ACCURACY OF MRI RESPONSE PREDICTION

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**Introduction:** Neoadjuvant chemotherapy (NAC) can be used to down-stage breast cancer and axillary disease to facilitate more conservative surgery. It is important to determine an imaging modality that can accurately determine which patients are appropriate for conservative treatment. This study aims to measure the accuracy of MRI in assessing the radiological response of axillary disease to NAC.

**Methods:** Retrospective data collection from a single institution, including all patients who underwent axillary node clearance (ANC) following NAC between May 2014-November 2017.

**Results:** 45 patients were included. Radiological complete response (rCR) was seen in 15 patients (33%). Four of these patients (27%) had 1-2 macrometastatic nodes on pathology, and three of these patients had ≥3 macrometastases (20%). 17 patients (38%) had pCR on ANC. Eight patients

as described previously had a rCR in their axilla (44%), and 9 patients (53%) had  $\geq 1$  positive axillary nodes on MRI following NAC. Discrepancy between radiological response and pathological response was seen in 26 patients (57%).

	0 (pCR)	Pathological Response (No. positive axillary nodes)			Total
		1-2	3+		
MRI Radiological Response (No. positive axillary nodes)	0 (rCR)	8	4	3	15
	1-2	5	3	6	14
	3+	4	4	8	16
	Total	17	11	17	45

**Conclusion:** There is a clinically significant discrepancy between rCR and pCR in the axilla. This highlights the fact that MRI cannot be relied upon for accurate axillary response to NAC; surgical biopsy and histopathological assessment remains necessary in rCR patients.

#### PO08. IMPACT OF SENTINEL LYMPH NODE BIOPSY ON PHYSICAL FUNCTION OF THE UPPER LIMB – A PROSPECTIVE STUDY IN PATIENTS WITH EARLY BREAST CANCER

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**Introduction:** Sentinel lymph node biopsy (SLNB) is the standard of care for axillary staging in breast cancer for clinically node negative patients. There have been some studies looking at upper limb morbidity after SLNB. We conducted a prospective study based on patient-reported functional outcomes after SLNB for early breast cancer.

**Methods:** Patients operated for a wide local excision and SLNB from February to November 2017 were included in the study. Patients were required to fill a validated Quick Dash (QD) questionnaire pre-operatively, at 2-weeks and at 3-months after SLNB procedure. The QD scores were calculated (Range 0–100) with higher score indicating poorer function. QD scores before and after surgery were compared.

**Results:** 120 patients were included in the analysis. Ninety-nine patients met all the inclusion criteria. The mean pre-operative QD score was 8.45. This increased to 16.05 at 2-weeks and reduced to 13.35 at 3 months. In a subset of patients without pre-operative upper limb dysfunction [QD score < 10 (n = 75)], the mean scores were 1.82, 10.53 and 6.70 pre-operatively, 2-weeks and 3-months respectively. Thus, there was an increase in the scores immediately after the procedure, which returned closer to baseline at 3 months. The mean scores in patients with pre-operative upper limb dysfunction (QD score > 10) increased after surgery and remained high at 3 months.

**Conclusion:** The Quick Dash scores suggest that there is a temporary deterioration in upper limb function after SLNB in patients with normal shoulder function. Assessment of 12-month scores would be useful to evaluate long-term outcomes.

#### PO09. DOES TOTAL TUMOUR LOAD IN SENTINEL LYMPH NODE BIOPSY ASSESSED BY OSNA PREDICT FURTHER AXILLARY NODE DISEASE? CAN IT STRATIFY WHICH PATIENTS MAY BENEFIT FROM AXILLARY CLEARANCE?

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**Introduction:** There is a lack of consensus regarding the optimum axillary management of early breast cancer, especially in women with only one or two node involvement. More than 50% of patients who proceed to axillary clearance following sentinel lymph node biopsy have no further nodal

involvement. One-Step Nucleic Acid amplification (OSNA) is a molecular assay of cytokeratin-19 (CK 19) mRNA which can be utilised intra-operatively for detection of lymph node metastases in breast carcinoma. Our aim is to identify a correlation of CK-19 total tumour load (TTL) and further axillary disease to aid intra-operative decision making regarding complete axillary dissection.

**Methods:** A retrospective single centre analysis of 1131 consecutive patients (Nov 2012 to Dec 2016) with invasive breast carcinoma who underwent intra-operative OSNA assessment was performed. Patient demographics, surgical and histopathological data were analysed.

**Results:** 490 (43.3%) patients had nodal positivity when assessed by OSNA. 302 (26.7%) patients had micrometastatic disease and 188 (16.6%) patients had macrometastatic disease. In the macrometastatic group, 138 (73.1%) of patients proceeded to axillary node clearance. Only 59 (42.8%) patients out of this cohort had further nodal involvement. Utilising a CK 19 copy number of 20,000 as a cut-off appeared to predict further axillary disease.

Total CK-19 copy No.	No. of patients	Axillary node clearance	Further LN involved
<20000	39	39	5 (12.8%)
>20000	99	99	54 (54.5%)

**Conclusion:** A CK-19 total copy number of >20,000 may help predict the likelihood of further axillary disease, aid intra-operative decision making, and avoid unnecessary further axillary surgery.

#### PO10. A PROSPECTIVE COMPARATIVE STUDY OF SENTINEL LYMPH NODE BIOPSY WITH INDO-CYANINE GREEN (ICG) FLORESCENCE TECHNIQUE VERSUS DUAL DYE TECHNIQUE FOR EARLY BREAST CANCER - GOING BEYOND THE HORIZON IN INDIA

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**Introduction:** The objective of the present study was to assess the performance of sentinel lymph node (SLN) biopsy using indocyanine green (ICG) fluorescence method compared with that using the conventional method in detection of SLN.

**Methods:** 60 patients diagnosed with early breast cancer in a tertiary cancer center (South India) underwent the SLNB procedure using technetium 99m radio colloid (R), methylene blue dye (MB), and ICG. All SLNs removed during surgery were labelled as hot, blue or/and fluorescent and sent for pathological examination. The detection rate of SLNs and positive SLNs, and the number of SLNs of ICG, MB+ R, ICG + MB, ICG + R were compared. Injection safety of ICG and MB was evaluated.

**Results:** SLN was identified in all 60 cases. Total SLNs removed was 145 (Mean=2). Identification rate with dual dye technique was 95%, blue dye alone 93.6%, radioisotope alone 96.8% whereas ICG alone was 100%. Both dual dye & ICG identified all the positive nodes (46.6%). None had any local or systemic reaction with ICG, 3 patients with blue dye had tattooing & skin staining.

**Conclusions:** ICG is as effective as the dual dye for SLNB. In addition, as a near-infrared dye, it has the advantages of real-time visualization, lower cost, and wider availability, since no radioactive material needs to be handled. It can be a boon for developing countries & second tier centers of developed countries where there is limited access to a nuclear medicine department facility & the cost involved in its establishment.

#### PO11. AXILLAR MANAGEMENT AFTER NEO-ADJUVANT CHEMOTHERAPY: EDINBURGH BREAST UNIT 2016-17 PERIOD

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**Introduction:** Recently neo-adjuvant chemotherapy (NCAT) has gained therapeutic importance for downsizing breast tumours but also for de-escalating axillary treatment. It is early days for this approach as there is