Results: Thus far 8 patients have had this procedure done and we aim to include another 30 by the end of February. The sentinel node was localized in 100% of patients. The site of injection was subareolar in all the 8 patients. Average time from injection to incision was about 20.10 minutes. The average time for the identification of the sentinel node from the incision was 14.08 minutes. The average ex-vivo count was 8920.00. These results have shown no significant differences to the results from the pre-operative injection of radioisotope prior to the anaesthetic.

Conclusion: Intraoperative subareolar injection of Tc99 after induction of anaesthesia is a safe effective and pain free technique for identification of sentinel lymph node in breast cancer patients.

593 Poster

The Role of Sentinel Node (SLN) Procedure After Neo-adjuvant Chemotherapy (NACT) for Node Positive Breast Cancer (NPBC)

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Background: The use of SLN procedure is the standard of care in early breast cancer. The management of NPBC after NACT is currently under investigation. We studied the feasibility of a SLN procedure in NPBC patients (pts) after NACT in order to prevent axillary lymph node dissection (ALND) in pts with a major clinical response (T<2 cm).

Material and Methods: The primary end points are the sensitivity, specificity, negative predictive value (NPV), positive predictive value (PPV) and accuracy of the SLN procedure. Tumor stages T2 (⩾3 cm)-T4, N1−3 were included. Lymph node involvement was proven by core biopsy. After diagnosis of NPBC, all pts were given the same NACT with or without trastuzumab. Lumpectomy (LE) or mastectomy (ME) was performed within 3 to 5 weeks after the last NACT and within 30 minutes to 10 hours after injection of tracer periareolar (148mBq 99m Tc Colloid albumin, planar scintigraphy, NanoColl®). This was followed by a SLN procedure and a level I & II ALND.

Results: Sixty-nine pts with invasive NPBC were included between 2008 and 2011. Eleven of them are still receiving NACT. In 3 pts the SLN was not found. In 11 other pts the SLN procedure was not performed, 2 of them had progressive disease (PD). Eventually 44 pts of the included pts received a SLN procedure. The median age is 47 (range 27−74) years; 86.4% (38/44 95% CI 0.73–0.95) of the pts had a major response; 9.1% (4/44 95% CI 0.03–0.22) stable disease and 4.5% (2/44 95% CI 0.01–0.15) had PD. Nine pts underwent LE and 35 pts underwent ME. The positive SLN rate was 50% (22/44 95% CI 0.35–0.65). Prevalence of a positive ALN was 12 out of 22, with a PPV of 54.5% (12/22 95% CI 0.32–0.76). In 17 pts with a negative SLN there were no metastases found in the ALN, unfortunately in 5 pts with a negative SLN there were metastases found in the ALN. The NPV is 77.2% (17/22 95% CI 0.55–0.92). The sensitivity and specificity of SLN were 70.5% (12/17 95% CI 0.44–0.90) and 63.0% (17/27 95% CI 0.42–0.81), respectively. In a subgroup of pts (n = 29) with a major clinical response after NACT similar results were found.

Conclusions: SLN after NACT is feasible in patients with a major response in NPBC. This study warrants a randomized phase III trial with or without ALND in a sentinel node negative population with a major response (cT <1 cm) for measuring axillary recurrence and overall survival.

	ALN								
SLN	+			−			Total		
	All	cT <2 cm	cT <1 cm	All	cT <2 cm	cT <1 cm	All	cT <2 cm	cT <1 cm
+	12	7	2	10	5	1	22	12	3
−	5	4	1	17	13	7	22	17	8
Total	17	11	3	27	18	8	44	29	11

594 Poster

Localisation Failures with Radio-guided Occult Lesion Localisation; Pitfalls and Solutions

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Background: Radio-guided occult lesions localisation (ROLL) of non palpable breast carcinoma uses the radiotracer which is injected intra-tumourally for sentinel lymph node identification for detection of the primary tumour during surgery. In the context of large multi center trial 162 patients underwent ROLL and 5 cases of mislocalisation of the carcinoma (i.e. defined as <25% of the lesion enclosed in the surgical specimen) were encountered. In a multidisciplinary setting, we evaluated reasons for failure of these ROLL procedures.

Methods: Women with non-palpable breast cancer and eligible for breast conserving treatment with sentinel node procedure received an intra-tumoural dose of 120 Mbq Technetium^{99} nanocolloid. Injection was done by the radiologist, with ultrasound or mammographic guidance. Guided by a gamma detection probe, the surgeon excised the primary tumour and the sentinel node(s). Patient, imaging and tumour characteristics were prospectively collected. For the 5 cases in which failure of localisation occured, imaging features, surgical reports and histological slides were scrutinized by a radiologist, surgeon and pathologist to elucidate the reasons of failure.

Results: Out of the 162 ROLL procedures, mislocalisation occurred in five (3%) patients. Four failures were ascribed to incorrect pre-operative localisation of the tumour for technetium injection. In 1 case, dispersion of the technetium was identified as the cause of incorrect localisation. Patient, imaging or histological characteristics did not explain the failures. All patients underwent reoperation.

Conclusion: Inadequate excision of breast cancer due to failure of the localisation procedure is a rare, but serious complication of the ROLL procedure, which should be prevented at any time. Future incorrect localisations may be avoided by using contrast medium mixed with the radiotracer for injection, allowing mammographic verification of the correct placement of the radioactive tracer.

595 Poster

The Effect of Radiotherapy On Axillary Recurrence After Negative Sentinel Lymph Node Biopsy

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Background: The aim of our study is to evaluate the effect of radiotherapy on axillary recurrence in patients with negative sentinel lymph node biopsy.

Material and Methods: The database of the European Institute of Oncology was retrospectively reviewed. Between 1996 and 2005, 4,000 patients operated for breast cancer had negative sentinel lymph node and no further axillary dissection. They were divided into four groups according to the type of surgery and radiotherapy received: group I included patients with breast conservation and external beam radiotherapy (BCS+EBRT, n = 2798), group II included patients with breast conservation and intraoperative partial breast irradiation (ELIOT full dose) (BCS+IORT, n = 766), group III included patients with breast conservation, intraoperative partial breast irradiation (ELIOT boost) and external beam radiotherapy (BCS+IORT+EBRT, n = 60), and group IV included patients with mastectomy and no radiotherapy (MT, n = 333).

Results: Fifty one out of 4,000 patients with negative SLNB (1.2%) presented ipsilateral axillary recurrence, after a median follow up of 86 months (range 4−76). Axillary metastasis was detected in 25 patients out of 2798 (0.89%) in group I (BCS+EBRT), 11 patients out of 766 (1.4%) in group II (BCS+IORT), one patient out of 60 (1.6%) in group III (BCS+IORT+EBRT) and 14 patients out of 333 (4.2%) in group IV (MT). Univariate and multivariate analyses are in process.

Conclusion: As the statistical analysis is still ongoing, definite conclusions can not be drawn at the moment. Completion of data evaluation is expected by the end of 2011.