

**Conclusions:** After 5 years of accrual the AMAROS trial has recruited 61% of the total number of patients needed to close this study. A strict quality control protocol resulted in a sentinel node identification rate of 98%. These results demonstrate the careful introduction of sentinel lymph node biopsy as promising axillary staging technique in early breast cancer.

## 122 **Risk stratification after introduction of sentinel lymph node biopsy technique – A population based DBCG study**

Poster

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**Introduction:** Risk stratification is used to allocate patient to adjuvant chemotherapy. Commonly used models to stratify a patients risk include lymph node status but also other prognostic factors are used. Sentinel Lymph Node Biopsy (SLNB) technique results in increased probability of detecting lymph node metastases because sentinel lymph nodes are examined more extensively using serial sectioning and immunohistochemistry staining. Studies suggests that 10–20% more metastases are detected. It is often argued in favour of introducing SLNB that these additional metastases will lead to more adjuvant therapy and subsequently better survival of the patients.

**Aim:** The aim of the present study was to examine the impact of additional metastases on risk stratification and allocation to adjuvant therapy after introducing sentinel lymph node biopsy technique according to three commonly used prognostic indexes.

**Methods:** All patients (n = 1913) with age 70 or younger were identified in three different counties in Denmark using the Danish Cancer Registry and the database of the Danish Breast Cancer Cooperative Group. Two periods (1996–97 vs. 2002) were compared in the counties of Funen, Aarhus and Northern Jutland. None of the three counties had introduced SLNB in the first period, however in 2002 only Northern Jutland had not implemented SLNB. Algorithms for risk stratification were made for the Nottingham Prognostic Index, The St. Gallen criteria and the criteria used in the Danish Breast Cancer Cooperative Group.

**Results:** A significant increase in the number of patients with metastasis were seen in Aarhus and Funen but not in Northern Jutland (p = 0.40) and the odds ratio for detecting lymph node metastasis increased significantly in Aarhus (OR = 1.36 95%CI 1.01–1.86) and Funen (OR = 1.59 95%CI 1.16–2.17) but not in Northern Jutland (1.23 95%CI 0.87–1.72). Despite the increased number of metastases only 4.2% in Funen, 3.4% in Aarhus and 1.3% in Northern Jutland received adjuvant therapy because of the finding of additional metastasis.

**Conclusion:** Despite significantly increased numbers of patients with additional metastases after introducing SLNB were seen the method had only little impact on allocating patients to adjuvant therapy. Other factors like tumor size and malignancy grade plays a major role in this allocation.

## 123 **Lymphatic drainage pathways of the breast and upper limb**

Poster

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**Introduction:** Breast cancer-related lymphoedema (BCRL) occurs in 1/4 of patients undergoing axillary lymph node dissection (ALND), and whilst it is believed that sentinel lymph node biopsy (SLNB) will significantly reduce the incidence of BCRL, a proportion of patients undergoing SLNB will still develop lymphoedema. We hypothesize that this may be due to shared lymphatic drainage between the breast and upper limb in this group of patients, and the aim of this study is to investigate the extent of the similarity between the axillary lymphatic drainage basins of the breast and upper limb.

**Description:** Patients with invasive breast cancer identified as suitable for ALND were injected pre-operatively with 40 MBq of <sup>99m</sup>Tc-Human Immunoglobulin (HIG) intradermally into the peri-areolar region of the ipsilateral breast and 3 MBq of <sup>111</sup>In-HIG intradermally into the dorsum of the ipsilateral hand, or vice versa. Axillary lymph nodes were removed, separated, and well-counted for the presence of <sup>99m</sup>Tc and <sup>111</sup>In.

**Summary:** In all, ten patients were entered into the study. In 8/10 patients the "hottest" lymph node for <sup>99m</sup>Tc was different from the "hottest" lymph node for <sup>111</sup>In. In 2/10 patients the "hottest" lymph node for <sup>99m</sup>Tc was also the "hottest" lymph node for <sup>111</sup>In suggesting a common drainage pathway for the ipsilateral breast and upper limb.

**Conclusion:** While the majority of patients have different pathways of lymphatic drainage for the ipsilateral breast and upper limb, in some patients the drainage pathway is through a common sentinel lymph node. These patients may be at increased risk of developing lymphoedema when undergoing SLNB.

## 124 **Sentinel node procedure is warranted in Ductal Carcinoma In Situ (DCIS) with high risk of occult invasive carcinoma and Micro Invasive Carcinoma (DCIS MIC) treated by mastectomy**

Poster

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Axillary lymph node dissection in patients with Ductal carcinoma in situ (DCIS) of the breast is not warranted because DCIS has no metastatic potential. However the risk of micro invasive carcinoma exists in large DCIS, which was not totally examined as in the case of a mastectomy. The aim of this series is to evaluate the feasibility of sentinel node procedure in DCIS and DCIS-MIC.

**Methods:** We analysed retrospectively patients treated in 5 French cancer centres for pure DCIS or DCIS-MIC. Surgical procedures were lumpectomy or mastectomy associated with an axillary sentinel node (SN) procedure.

**Results:** We included 161 patients suffering from pure DCIS (116/161 72%) or DCIS-MIC (45/161 28%). Mean age was 56 years (32–78). Forty-eight breast conservative procedures were performed and 113 mastectomies (70%). SN procedure was performed using blue, technetium or both. The detection rate was 100% and no patient had axillary lymph node sampling. In our series, we selected patients with a high risk of occult invasive carcinoma: high grade (55%), mean size (27 mm), mastectomy (112) and patients under 40 (8.7%). Six SN were found positive (3.7%). In the 5 patients treated with complete axillary dissection, the SN was the only positive node.

**Conclusion:** Sentinel Node in DCIS is an interesting procedure but not necessary for all patients. We need to focus on the subgroup with or a high risk of occult micro invasive carcinoma: young patients, DCIS diagnosed by core biopsy, high grade, large tumour size, MIC and mastectomy.

## 125 **Objective assessment of sentinel node tumor burden and its impact on sentinel node localisation in breast cancer**

Poster

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**Background:** Extensive tumor infiltration of the draining lymph nodes may prevent the migration of tracer to the sentinel node(SN), adversely affecting SN identification.

**Methods:** A total of 202 breast cancer patients underwent SN biopsy using <sup>99m</sup>Tc albumin colloid and Patent Blue V injected peritumorally. This was followed by standard axillary clearance in all patients at the same operation. Tumor burden in the SN was assessed by measuring the size of metastasis, percentage replacement(PR) of the SN by tumor and by documenting extranodal invasion(EI). Digital images of the marked slides were acquired and measurements were made using Image Pro Plus software.

**Results:** The overall SN identification rate was 94.6% (191/202), of which 5 were false negatives. Only 18% (2/11) of patients with failed SNB had evidence of nodal metastases on completion axillary clearance. A total of 83 positive SNs were removed from 64 patients. radio-isotope count in the SNs decreased with increasing PR of the SNs by tumor (p = 0.005). 30%(24) of the nodes removed were not hot(counts < 10 times the background count). The mean PR by tumor of these nodes was 55%(SD 36) as compared to 33%(SD 33) for hot nodes (p = 0.009). 20%(16/81) of the positive SNs showed EI. 69%(11) of nodes with EI were not hot (radio-isotope count ratio < 10) and would not be localised if the radio-isotope was used alone. SNs with EI had a lower radio-isotope count compared to SNs without EI (p < 0.0001). The mean PR by tumor of nodes with EI was 70% (SD 26) compared to 32% (SD 33) of nodes without EI. This shows that extranodal growth of the tumor would occur once the node is > 50% replaced with tumor.