Results: SNOLL was utilised on 79 patients (median age, 63; range 57−68) between 2007 and 2009. 76 procedures were for invasive breast cancers. The median primary tumour size was 12 mm (range, 10 -17 mm). Over two thirds of the lesions were in the upper half of the breast. Of these 54.4% were located in the inner quadrant while 15.5% in the outer quadrant. The mean number of SLNBs retrieved was 1.86. In addition to SLNBs, 12 patients (15.2%) had non sentinel lymph node biopsies performed. Of note, none were positive. The number of SLN positive patients was 7 (8.9%) with a mean retrieval of 2.

Conclusion: SNOLL successfully localised all lesions. The combined use of radio-isotopes for lesion and sentinel lymph node removal in early breast cancer is feasible and reliable. Such a technique could rapidly become a standard practice within the NHS.

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Intra-operative Detection of Sentinel Lymph Node Metastasis in Breast Cancer by One Step Nucleic Acid Amplification (OSNA)

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Background: Despite recommendations from international and national breast cancer guidelines there is no standardised histopathological procedure for intra-operative and post-operative analysis of the sentinel lymph node (SLN). In this OSNA study/routine use overview we used the molecular diagnostic OSNA assay for intra-operative SLN analysis in breast cancer patients. OSNA is based on CK19 mRNA amplification and has shown to be as accurate as intensive post-operative histology.

Methods: Eighty SLNs from 47 breast cancer patients were included in the study. A 1 mm middle slice was reserved for intra-operative frozen section staining. The rest of the SLN was homogenised and analysed with the automated OSNA system.

For routine use in 28 patients (45 SLNs) the whole node was dedicated for OSNA without conserving any tissue for histology.

Results were displayed as (++) equivalent to a macrometastasis, (+) for a micrometastasis, (−) for negative, and led to direct axillary dissection if positive.

Results: In the study phase, 20 patients gave a positive OSNA result (22 SLNs with ++, 12 SLNs with +), resulting in a positivity rate of 42.6%. In 27 patients OSNA was negative, with one patient having a very small micrometastasis in the 1 mm middle slice. 6 patients were OSNA positive/histology negative, thereby avoiding a second surgical intervention as axillary dissection was performed intra-operatively. In 14 patients 1 SLN was analysed, in 19 patients 2 SLNs, in 11 patients 3 SLNs, in 3 patients 4 SLNs with the mean analysis time of 29.5, 37, 40, and 51 minutes, respectively.

In OSNA whole node use, 10 patients had a positive OSNA result (8 SLNs with ++, 3 SLNs with +) with a positivity rate 35.7%. 18 patients showed a negative OSNA result.

Conclusions: OSNA is a standardised technique for intra-operative SLN investigation which could replace both intra-operative and post-operative histology as most or all of the tissue can be analysed during the primary surgery.

Wednesday, 21 March 2012 12:00–13:15

POSTER SESSION

Epidemiology, Prevention, Screening

119 Poster discussion

Efficacy of Bilateral Risk-reducing Mastectomy on Primary Breast Cancer Risk in Healthy BRCA1 and BRCA2 Mutation Carriers

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Objective: To assess the efficacy of bilateral risk-reducing mastectomy (BRRM) on primary breast cancer (PBC) risk in healthy BRCA1 and BRCA2 mutation carriers.

Methods: In total 552 proven BRCA1/2 mutation carriers under surveillance at the Erasmus MC Family Cancer Clinic (395 BRCA1 and 157 BRCA2) were followed up until June 30, 2011. Participants had no history of breast or ovarian cancer, and had both breasts as well as both ovaries in situ at DNA diagnosis. Eventually 152 BRCA1 and 50 BRCA2 mutation carriers underwent BRRM. Women contributed person-years of observation (PYO) to the surveillance group from the date of DNA diagnosis to the date of PBC, BRRM, ovarian cancer, death, or last FU. Contribution of PYO to the BRRM group started at the date of BRRM until similar endpoints as described for the surveillance group.

Results: During 3051 PYO, 54 PBC cases were observed in the surveillance group (median age at diagnosis 43 years), while no PBC cases occurred during 1283 PYO in the BRRM group (median age at BRRM 35 years), corresponding with incidence rates per 1000 PYO of 18 and 0, respectively. In the BRRM group, one woman presented with distant metastases of BC almost 4 yrs after BRRM (no PBC found at BRRM), and died afterwards. After a mean FU of 11.5 years, 4 women died of BC in the surveillance group. With an overall mean FU of 10.3 years, the mortality rate per 1000 PYO was 1.0 in the surveillance group versus 0.6 in the BRRM group. To estimate the effect of BRRM (versus surveillance) on mortality, a multivariate Cox model with BRRM as a time-dependent covariate was performed and revealed a hazard ratio of 0.58 (95% CI, 0.05–6.90).

Conclusions: BRRM in healthy BRCA1/2 mutation carriers can reduce the probability of PBC occurrence to zero. Longer FU is warranted to confirm survival benefits.

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BRCA1 Carriers and Oral Contraceptives − Risk-benefit Calculation on Breast and Ovarian Cancer

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Background: The weak association between oral contraceptive (OC) use and risk of breast cancer is not regarded as a contraindication for OC use in the general population. This is partly because it is still not certain whether the association is causal. Even if it were, the absolute excess risk of breast cancer would be small, and might be outweighed by its contraceptive effects and positive health outcomes as the substantial protection against ovarian cancer. The implications of the OC-cancer risk associations may differ between the general population and BRCA1 carriers because of the higher risk of the disease during reproductive years in carriers.

Methods: To illustrate potential implications, we calculated the excess number of breast and ovarian cancers that would arise in the 20 years following a 5 year period of use of OC at six 5-year age ranges under the assumption that the associations of breast and ovarian cancer associated with OC use are the same among BRCA1 carriers as estimated for the general population. Incidence rates of breast/ovarian cancer among BRCA1 carriers are based on Antoniou et al. AJHG 2003. When estimating the absolute numbers of breast or ovarian cancer cases we took into account the decreasing population at risk due to the mortality to other causes. The BRCA1-related excess breast cancer mortality was incorporated in the ovarian cancer model, as was the benefit on ovarian cancer mortality in the breast cancer model. We assumed that the risks of the two cancers are independent and that the survival of breast and ovarian cancer is similar for carriers and women in the general population.

Results: Based on these calculations, the estimated extra cases of cancer per 10,000 women during 20 years of follow-up, for use of OC between the ages 20−24, 25−29, 30−34, 35−39, 40−44, 45−49, were 0, 2, 8, 17, 28, and 38 respectively, in the general population and -109, -172, -210, -286, -312, and -288 respectively, in BRCA1 carriers. We conducted several sensitivity analyses.

Conclusions: Assuming that the associations of OC and risk of breast and ovarian cancer are the same for BRCA1 carriers as for women in the general population, the protective effect on ovarian cancer might outweigh the risk increasing effect on breast cancer.

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Risk Factors Associated with Lobular Carcinoma in Situ: Results of the GLACIER Study

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Background: Lobular carcinoma in situ (LCIS) is a form of non-invasive breast cancer that is often clinically undetectable and confers an increased risk of subsequent invasive breast cancer in either breast. Approximately 50−70% of subsequent cancers are invasive lobular carcinomas (ILC), suggesting that LCIS is a precursor lesion in a similar manner to DCIS. However, it is also argued that LCIS may be a marker for the subsequent development of invasive breast carcinoma, as LCIS increases the risk of invasive cancer in both breasts and of all morphological subtypes. Currently, in the UK, LCIS is considered a risk factor for subsequent