62 Poster

The mammographic pattern of BRCA 1 breast cancers compared to age-matched sporadic controls

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Background: Breast cancers in BRCA 1 gene mutation carriers often have specific histologic features: high grade tumors with pushing margins. These tumors can give aspecific, benign looking features on the mammogram. Generally, young breast cancer patients also have more often high grade tumors, with round rather than stellate tumor margins.

Objective: Investigate the mammographic characteristics in BRCA 1 carriers, compared to their age-matched controls.

Methods: The mammograms of 27 carriers who developed a first or second breast cancer during surveillance in the period 1994–2001 were reviewed. In the retrospective case-control study, the carriers were age-matched with 107 controls with a known negative family history. One radiologist also reviewed their diagnostic mammograms, he knew the location of the breast cancers, but was unaware of the carrier status.

Results: In the carriers significantly more grade III, estrogen receptor negative breast cancers were found, compared to the controls: 85% and 25% respectively. On the mammograms of the carriers more circumscribed lesions were found: 44% versus 9% ($p < 0.001$) and not a single stellate lesion, whereas in the controls 27% had this typical malignant feature. Age grouping did not alter the significant predominance of the circumscribed lesions in the carriers. When microcalcifications only were seen on the mammograms in about 40% of the cases in both groups pure DCIS was diagnosed. In the carriers overall less DCIS with or without an infiltrating component was diagnosed: 22% compared to 45% in the controls ($p = 0.03$).

Conclusions: The breast cancers diagnosed in BRCA 1 mutation carriers all have atypical malignant mammographic features matching the histologic phenotype. In the relatively young (mean age 45 years) sporadic controls a minority of the cancers show the typical stellate lesion on the mammogram. Significantly less DCIS is present in the tumors of mutation carriers.

63 Poster

Multicentric and multifocal breast cancer: additional value of whole-breast ultrasound in preoperative evaluation

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Aims: To review the incidence of multicentric and multifocal breast cancer presenting to a single breast centre in Singapore.

To evaluate the efficacy of preoperative whole-breast US in the detection of additional multifocal or multicentric (multiple) tumours and the effect of this information on subsequent surgical decisions.

Brief description: A review of our breast cancer database from 2002 to 2005 was performed to determine the total number of invasive breast cancers that were operated on and the number of patients that had multiple tumours. Focussing on the latter group of patients, we reviewed their clinical and radiology findings, surgical treatment and histology.

Summary: Between January 2002 to September 2005, 715 patients with invasive breast cancers were operated on with subsequent histology yielding 112 (15.7%) patients with multiple tumours; 54 (48.2%) had multicentric foci and 87 (77.7%) had multifocal foci. Of these, 82 underwent both standard mammogram as well as whole-breast US during preoperative evaluation. Suspicious foci were reported in 79 (96.3%) patients with US while mammogram depicted 76 (92.7%). The addition of US enabled 24 (30.3%) patients with multicentric tumours to be picked up as compared to 7 (9.2%) by mammography alone. Of 7 patients mammographically reported as having benign or occult disease, 2 (28.6%) were shown on US to have suspicious unifocal disease leading to a change in surgical management for both patients (100%). Of 69 patients whose mammograms reported occult, benign or suspicious unifocal disease, 19 (27.5%) were found on US to have multicentric tumours, leading to a management change in all 19 patients (100%). Similarly, 27 out of these 69 patients had evidence of multifocal tumours on US, leading to a management change in 25 of them (92.6%). On the other hand, US reported unifocal disease in 5 out of 13 (38.5%) patients that had an earlier mammographic report of multiple tumours. However, this discrepancy did not influence the final surgical decision for these patients.

Conclusion: The incidence of multicentric and/or multifocal breast cancer in our local population is 15.7%. Whole-breast US increased the preoperative diagnosis of multiple tumours in these patients, resulting in a management change in more than 92% of cases.

64 Poster

US and MRI Findings in chest wall recurrences in breast cancer patients treated with mastectomy

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Purpose: Physical examination is generally accepted as sufficient in the follow-up of the mastectomy site in breast cancer patients. The purpose of this study was to evaluate the role of ultrasound and MRI compared to physical examination in the diagnosis of local chest wall recurrences.

Materials and Methods: MRI of the chest wall was performed in 47 mastectomized patients with the following indications: Suspicious clinical findings: 13, suspicious findings in the US examination of the chest wall: 11, suspicious clinical and US findings: 13, contole: 12. Dynamic imaging was performed with a double breast coil and 1 T magnet using FLASH 3D sequence. All patients were examined with US prior to MRI. Findings were compared to excisional or needle biopsy results.

Results: Biopsy results revealed local recurrences in 12 patients. The sensitivity and specificities respectively were 100% and 100% for MRI, 83% and 62% for US, 41% and 43% for clinical findings. MRI was also more successful in demonstrating the number and extent of lesions.

Conclusion: Both US and MRI were superior compared to physical examination. We think that US of the chest wall should be a part of annual follow-ups. MRI can be performed in patients with equivocal findings. MRI, being able to demonstrate the full extent of the lesions, would also be helpful in the decision of surgery versus chemotherapy and monitoring response to therapy.

65 Poster

Implementation of a quality system for the assessment and primary treatment of women referred in a population-based breast screening programme in the region of a Comprehensive Cancer Centre in the Netherlands. The next step

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Introduction: In the Netherlands special breast cancer screening services were set up to perform the breast cancer screening on a regional level, linked to the comprehensive cancer centres.

For further assessment of a suspicious lesion found in the screening the woman is referred to a hospital. Further assessment is therefore not part of the screening process itself in contradiction to other countries.

To support the specialists in the region of the comprehensive cancer centre west in the multidisciplinary task of diagnosis and treatment of the women referred to them by the screening a quality improvement system is developed and implemented.

Methods: A multidisciplinary committee, in which all disciplines involved in diagnosis and primary treatment were involved(radiology, surgery, pathology and radiotherapy), drafted a testable guideline, based on national and regional guidelines and practice experience. In the guideline review criteria are formulated. In the evaluation of the 11 hospitals the committee acts as a multidisciplinary audit team. The evaluation is focused on the organisational and medical procedures with regard to quality of care. Clinical data of around 30 women referred to each hospital are collected and used for feedback to the specialists. The evaluation focuses on organisational and medical procedures with regard to quality of care.

Results: Focussing on the total scores per discipline per hospital, no hospital scored the best or worst on all four disciplines. The individual review criteria per discipline show more practice variation. Example: correlation between the mammographic abnormality and histology (pathology).

Parallel to the traject of evaluation visits to the hospitals the committee worked on readjustment of the guidelines for the next round, including new review criteria per discipline. The first results of the next round showed some improvement taken into account the recommendations. Aiming for further improvement one year after the evaluation visit a questionnaire is send to the hospital. Based on this questionnaire a random test is done by the committee. The results of the questionnaire and test are discussed