

Conclusion: The breast cancer screening programme has been implemented in the majority of municipal districts in Yugra. Compared with a similar program in Moscow, the Yugra breast cancer detection rate was 1.5 times higher and amounted to 0.3% of the total number of screening women over 40 years (in Moscow – 0.2%).

However, it should be noted that at the moment, insufficient detailed information has been collected on the breast cancers detected within the BCSP, in particular the histological findings (size of primary tumor, involvement of lymph nodes in disease). We are going to improve the quality of data collection in order to give an accurate estimate of screening test and program sensitivity, standardized detection ratios and positive predictive value of recall for assessment. In addition, it is anticipated that these data will allow us to provide a tentative prediction of the likely future effect of the screening on breast cancer mortality. In addition, we will assess the feasibility, resource needs, and likely effects of incorporating routine blood marker studies into the Yugra screening program.

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POSTER

Sequence variants in BRCA1 and BRCA2 genes detected by high-resolution melting analysis as a tool in molecular genetics analysis of inherited breast cancers

S. Levanat¹, M. Levacic Cvok², V. Musani¹, M. Cretnik¹, P. Ozretic¹.
¹Rudjer Boskovic Institute, Molecular Medicine, Zagreb, Croatia; ²Rudjer Boskovic Institute, RMD ltd, Zagreb, Croatia

Background: Epidemiological data indicates that 5–10% of all breast cancers is hereditary, of which at least a third are associated with inherited mutations in the autosomal dominant tumor suppressor susceptibility genes BRCA1 and BRCA2. Carriers of BRCA1 and BRCA2 are at higher risk for developing of breast cancer by age 70 (between 45–85%) and of ovarian cancer (between 11–62%). Therefore, screening for variants in the BRCA1 and BRCA2 genes can contribute to prevention and early cancer detection in cases with familial predisposition.

Materials and Methods: Several screening methods are accepted by Eurogentest, and one of latest is based on high-resolution melting approach, that is efficient for rapid detection of sequence variants in cancer patients and their family members.

This approach is based on differences in melting curves caused by variations in nucleotide sequence, but detected variants have to be confirmed by direct sequencing.

Our lab established procedures for genetic analyses of those genes in families with high frequencies of breast/ovarian cancer in concordance with EMQN best practice guidelines for molecular genetic analysis in hereditary breast/ovarian cancer accepted at the EMQN workshop 2007.

Results: We found 21 different polymorphisms of BRCA1 and 36 of BRCA2 gene as normal variants in 200 BRCA1 and BRCA2 samples of healthy volunteers. We also tested the application of this approach using 25 coded samples with known mutations.

Conclusions: First screening was performed on elderly women with no personal or familial history of cancer, in order to identify benign high frequency variants of BRCA1 and BRCA2 in Croatian population. Intention of this pilot project was to introduce genetic testing into the national program of early detection of breast and ovarian cancer. In Croatian population of 4.5 million, an average of 2,200 new breast cancer and 400 ovarian cancer cases annually have been reported over the last ten years and 800 women die of breast cancer each year (data from Croatian National Institute of Public Health, 2006).

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POSTER

Chest x-ray as a staging investigation in early operable breast cancer – is it necessary?

P. Begum¹, T. Sircar¹, D. England¹. ¹Queen Elizabeth Hospital, Breast and General Surgery, Birmingham, United Kingdom

Introduction: Confusion exists about performing chest x-ray routinely, as a staging investigation, to detect metastasis, in patients with early operable breast cancer (T1, T2, N0, N1). The aim of this study was to find what proportion of chest x-rays detected metastasis in early operable breast cancer and if this investigation was necessary.

Method: Retrospective study of 200 consecutive breast cancer patients between September 2006 and June 2007. We excluded 78 patients who either had DCIS, neo-adjuvant chemotherapy, multiple tumours, bilateral tumours, inoperable tumours, recurrent tumours or toilet mastectomy. We studied 122 patients who had surgery for primary invasive breast cancer.

Results: 95% patients (n = 116) had preoperative chest x-ray. Mean age was 61 years (range 34–91). 53% of patients were below 60 years of age. Average size of tumour was 27.7 mm (range 1.5–120 mm). 78% (n = 91) had T1 or T2 tumour (diameter of 5 cms or less). Out of 116 chest x-ray, 113 (97.4%) showed no metastasis. Chest x-ray of 3 patients (2.6%)

showed suspicious abnormality. Subsequent CT scan of thorax showed no pulmonary metastasis in these 3 patients.

Conclusion: While there are issues with cost and radiation in performing routine chest x-ray for all operable breast cancer patients, it can also produce false positive results (as observed in 3 of our patients). This can be associated with immense patient anxiety. In our cohort none of the patients had lung metastasis. Therefore for asymptomatic, early, operable breast cancer patients, routine preoperative chest x-ray to detect metastasis is not necessary.

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POSTER

Identification and localisation of sentinel lymph nodes using microbubble enhanced ultrasound in pre-operative breast cancer patients

A. Sever¹, S. Jones¹, K. Cox¹, J. Weeks¹, P. Mills¹, D. Fish¹, P. Jones¹.
¹Maidstone Hospital, Breast Clinic, Maidstone Kent, United Kingdom

Background: In patients with breast cancer, tumour staging is dependant upon surgical excision of ipsilateral axillary lymph nodes (LN). Sentinel lymph node (SLN) biopsy has been shown to be a safe and accurate first-line technique in patients with early invasive disease. In animal models, superficial lymphatics can be imaged using ultrasound and intradermal microbubbles. This study aimed to identify and localise SLN using microbubble enhanced ultrasound in pre-operative breast cancer patients.

Materials and Methods: Seventy consecutive consenting patients with primary breast cancer were recruited. Pre-operatively, patients received periareolar intra-dermal injection of microbubble contrast agent, breast lymphatics were visualised by ultrasound and followed to identify putative axillary SLN. Contrast-pulse sequencing and grey-scale ultrasound modalities were used to image LN. Sentinel LN were then localised with guide-wires. One day later, patients underwent standard tumour excision and SLN biopsy using blue dye and radio-isotope with subsequent histopathological analysis.

Results: Operative findings confirmed that guide-wires were successfully inserted into SLN of 61 patients. In 36 patients, SLN were visualised as areas of contrast accumulation within a defined LN structure seen clearly on grey-scale imaging. In 23 patients, SLN were identified as areas of contrast accumulation within ill-defined nodal structures. In 2 patients, SLN were identified only as areas of contrast accumulation. In 9 patients, the procedure failed. Contrast enhanced ultrasound correctly identified SLN in 61 of 70 patients (87%). Eleven patients were found to have LN metastasis. In all metastatic cases, SLN were correctly identified and localised with guide-wires pre-operatively.

Conclusions: By means of this novel technique, SLN may be readily identified and localised in the pre-operative period. Ultrasonic identification of SLN would enable targeted biopsy in the breast clinic and may reduce the numbers of patients requiring primary or secondary axillary surgery. This technique may also be applicable to other superficial malignancies.

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POSTER

Breast cancer trials – is race an important factor?

R. Lee¹, K. Mayer², G. Dranitsaris¹, S. Verma¹. ¹Sunnybrook Odette Cancer Centre, Department of Medical Oncology, Toronto, Canada; ²University of Toronto, Faculty of Medicine, Toronto, Canada

Objective: Breast Cancer is a global disease. Much of the research is done in the western countries and these results are applied to women from different ethnic backgrounds. The objective of this study was to examine the demographics of all published Phase III non-surgical treatment randomized controlled trials (RCTs) in breast cancer, and to determine whether there is a discrepancy in the representation of different racial groups in these trials.

Methods: Phase III non-surgical therapeutic RCTs in breast cancer published from 1965 to present were identified using the Medline and Pubmed databases. Demographics including age and race were recorded. Comparisons were made between the proportion of Caucasians compared to non-Caucasians enrolled in the RCTs; and the proportion of RCTs published in developed Western countries in comparison to other countries.

Results: 325 RCTs were identified. The average mean and median age reported were 56.5 and 55 respectively. For the studies that reported age in categories, 65% of the participants were under the age of 60. Only 50 studies (15.4%) reported racial data. Within the 50 studies, 90% of the participants were Caucasians. Of the 325 trials, only 40 (12.3%) trials were done outside of North America or Western Europe.

Conclusion: Racial/ethnic information was provided in only a minority of trials. Also most of these trials were led, developed and conducted in the western world. This limits the generalizability of the data from current breast cancer research to the global level. With the growing incidence of breast cancer worldwide, it is important to perform these trials internationally and