

5182

POSTER

Prognosis of Breast Cancer Patients – Causes of Death, Effect of Time Since Diagnosis, Age and Tumour Characteristics

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Background: The proportion of women living diagnosed with breast cancer in the developed countries is increasing. Since breast cancer-specific deaths decrease with time since diagnosis, it is important to assess the burden of other causes of death as well.

Materials and Methods: Different causes of death within 10 years from diagnosis were assessed in 12,850 women <75 years with stage 1–3 breast cancer diagnosed 1990–2006. Flexible parametric survival models were used to estimate hazard ratios over time-since-diagnosis by tumour characteristics and age at diagnosis.

Results: The proportion of deaths attributed to breast cancer ranged from 95.0% among women <45 years at diagnosis to 44.5% among women 65–74 years. The proportion of circulatory system-specific deaths and of other causes of death increased with older age at diagnosis. Patients with 1–3 positive lymph nodes were more likely to die from breast cancer during the first 10 years of follow-up compared to women without positive lymph nodes. Women with ER-positive tumours had the same risk of dying from breast cancer after 5 years from diagnosis compared to women with ER-negative tumours.

Conclusions: Lymph node negativity is an important long-term predictor of more favorable prognosis. The nature of the relationship between ER-status and risk of dying from breast cancer after five years of follow-up needs further investigation. Death due to circulatory system diseases becomes an important cause of death especially in women diagnosed with breast cancer at older age.

5183

POSTER

Actions, Emotions, and Reflections Regarding Work After Breast Cancer Surgery – a Qualitative Study

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Background: Breast cancer incidence as well as survival rates have increased, but research on factors of importance for return to work (RTW) after surgery is still scarce, especially regarding the individual's perceptions and actions in the RTW-process. The aim was to explore the own role of women with breast cancer in relation to RTW; specifically own actions, reflections, and emotions.

Methods: Four focus group interviews with 23 women were conducted two to twelve months after breast cancer surgery. The groups were strategically composed regarding treatment and age, to increase homogeneity. The transcribed interviews were analysed inductively through thematic analysis.

Results: The women took an active role in relation to sick leave or RTW and about when or to what extent they returned to work. Decisions in these matters were influenced by health, social circumstances as economy, a search for normality, appraisal of work, and support in the workplace. Retrospectively, most women who continued to work during treatment were satisfied to do so, even if they initially felt forced to continue working e.g. by economical reasons.

A second type of action taken was whether and how to ask for or make use of adjusted work conditions. Reflections behind this regarded the individuals health as susceptibility to infections or cognitive problems posing difficulties at work, appraisal of work/rehabilitation, own wishes to change tasks, and flexibility in working conditions.

Thirdly, disclosure of the diagnosis, degree of disclosure, and to whom disclosure was directed was an issue. The women reflected on disclosure as giving a sense of security in colleagues knowing, but also leading to fear of discrimination. Disclosure was perceived as a way to signal less work capacity during or after treatment in order to obtain accommodations.

Conclusions: These results are useful for planning future interventions, targeting RTW.

5184

POSTER

Contralateral Prophylactic Mastectomy: a Prospective 2-Years Follow-up Study of Health Related Quality of Life and Body Image

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Background: The aim of the study was to prospectively evaluate body image, sexuality, emotional reactions, and HRQoL in women undergoing contralateral prophylactic mastectomy (CPM) with breast reconstruction. Carriers of BRCA1 or BRCA2 mutations (BRCA1/2) were compared with the non-carriers.

Materials and Methods: All patients undergoing CPM at Karolinska University Hospital between January 1, 1998 and July 1, 2008 were eligible for the study. Preoperative hospital routine included consultation with the psychologist, where patients were invited to participate in this questionnaire study. Before CPM, 6 and 24 months after CPM the following questionnaires were used: *The Swedish Short Term-36 Health Survey* (SF-36), *The Hospital Anxiety and Depression Scale* (the HADS), *The Body Image Scale* (the BIS), *The Sexuality Activity Questionnaire* (the SAQ).

Results: Sixty-nine consecutive patients operated on with CPM were recruited for the study. Nine patients did not return any questionnaire. Among the 60 participants, 29 (48%) were carriers of BRCA1 (n=23) or BRCA2 (n=6). Forty-five (75%) patients responded to the questionnaire before CPM, 49 (82%) patients at 6 months, and 45 (75%) patients 2 years after CPM.

SF-36. No statistically significant difference was found between BRCA1/2 and non-carriers at all points of assessment. At baseline, BRCA1/2-carriers scored clinically significantly higher (≥ 5 points difference) on emotional role, physical role, general health, and vitality domains than non-carriers. Two years after CPM, there were clinical differences in favor of non-carriers for physical role and general health.

The HADS. There were no changes in anxiety and depression levels over time, and the between-group differences were not statistically significant at any of the assessment points.

The BIS. The mean BIS summated scores in both groups showed no negative changes in satisfaction with body image over time. However, a substantial proportion of the patients still reported body image problems at the two-years assessment (between 15 and 70%).

The SAQ. The pleasure factor decreased over time in both groups. Discomfort levels were similar in both groups before and 2 years after CPM. The majority of patients in non-carriers group had sexual activity "at usual level", whereas BRCA1/2-carriers reported "less than frequent" sexual habit at all points of assessment.

Conclusions: Some aspects of body image and sexual activity appeared to be affected negatively by CPM, although no changes in HRQoL, anxiety or depression were observed. No differences between BRCA1/2-carriers and non-carriers were found on the outcome variables.

5185

POSTER

Quantification of Cytochrome P450 2D6 and Tamoxifen Response – a Study in Iranian Patients

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Background: Tamoxifen is one of the most effective adjuvant breast cancer therapies available.

The rate of metabolism of these drugs is mainly determined by the amount of cytochrome p450 2D6 (CYP2D6) enzyme expressed in the liver, which is highly variable due to extensive genetic polymorphism and different copy number. Since there is limited information about CYP2D6 in Iran, in this study we aimed to determine copy number of the above mentioned gene in Iranian breast cancer patients who received tamoxifen therapy.

Material and Methods: *Samples:* A total of 11 unrelated Iranian tamoxifen resistance and 39 non resistance breast cancer patients were obtained from Iranian Center for Breast cancer Bio Bank (ICBC-BB). DNA of the samples was extracted using phenol chloroform method and quantified using spectrophotometry.

Copy number analysis: Establishment of standard curves for copy number determination was done by cloning of the fragment of the CYP2D6 as gene of interest and albumin as a control in TA cloning vector. Primers for PCR and cloning were designed using primer express v.3.0. Real-time PCR was performed using the ABI 7500system. Amplification reactions (20 ul) were carried out in triplicate with 40 ng of template DNA, SYBR Green Master Mix buffer (PrimerDesign Ltd, UK) and 300 nM of each primer. Primers were the same which were used for amplification of the two genes in cloning. Each sample was run triplicate with 4 fold serial dilutions in same plate

and this strategy was repeated for other patients. Samples with standard deviation greater than 0.5 from the mean threshold cycle of the triplicates were excluded from analysis. Copy number calculation was done using applied biosystems SDS software ver2.0.

Result: Primer efficiency for CYP2D6 and Albumin was 104% and 97% respectively. The copy number range was 0.4 to 3 and no significant difference was seen between resistance and nonresistance group. One CYP2D6 copy number and also more than two was detected in both groups. **Conclusions:** Although no significant difference was between two groups, it does not mean that copy number variation play no role in resistant group in the samples. Further analysis including genotyping and multivariate analysis considering other factors for tamoxifen resistance and also increasing sample size must be done in order to decide about CYP2D6 status in tamoxifen response in Iranian samples.

5186

POSTER

Moving Forward – Developing an Information Resource for Women at the End of Hospital Based Treatment

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Background: Following completion of hospital based treatment breast cancer patients often feel isolated and abandoned and report a lack of information and support to address their recovery needs. Feedback from service users at Breast Cancer Care identified a need for a resource at the end of breast cancer treatment. In collaboration with our Service User Research Partnership (SURP) group we set about designing and delivering this study.

Materials and Methods: The aim of this study was to develop a resource for breast cancer survivors based on their identified unmet information and support needs and user feedback. A qualitative mixed method approach was used in two phases:

Phase1: Two focus groups with 12 women at the end of hospital based treatment Telephone interviews of 12 healthcare professionals

Phase 2: Reconvened focus groups and email review of healthcare professionals to critique a prototype resource.

Results: Resource content was informed by the conceptual framework developed from interview analysis which identified a process of reconciliation – 'reflection', 'isolation', 'loss of self' and 'moving forward in life'. Participants wanted a comprehensive resource that could be individually tailored and includes self-management strategies. Real life experiences of patients, signposting to other resources and usefulness over time were also considered important.

Conclusions: This is the first information resource to be developed specifically with and for breast cancer survivors in the UK. It has considerable potential to improve the experiences of many living with breast cancer. Further, it will assist healthcare professionals in the care of their patients at the transition from active treatment to survivorship.

5187

POSTER

Unfavourable Prognosis in PT1b HER2 Positive and Triple Negative Breast Cancer Patients

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Background: Controversy still exists about adjuvant treatment decision for small node negative (N0) early breast cancer (BC). Retrospective evaluations of clinical and pathological data show different outcomes. The objective of our analysis is to evaluate recurrence risk in patients (pts) with pT1abc, N0 BC accordingly with some prognostic biological factors.

Methods: We retrospectively evaluated 900 pts who underwent surgery between 2000 and 2010 in 4 Italian oncologic centers. Survival analysis was performed only for pts enrolled until December 2008 (773 pts) in order to obtain a minimum follow up (FU) of 3 years (yr).

Results: Median age at diagnosis 58 (range 21–86); premenopausal 28%; invasive ductal carcinoma 87%; Ki 67 >15% 28%; histologic grade G1 20%, G2 50%, G3 19%, no data in 11% of pts; pT1a 8%; pT1b 38%; pT1c 54%. We defined 3 cohorts: ER positive (ER+) 75%; HER2 overexpressed or amplified (HER2+) 14%; triple negative (TN) 11%. All ER+ pts received adjuvant hormonal treatment. Chemotherapy (CT) was administered in

33% of pts (pT1c 70%, pT1b 27%, pT1a 3%). In HER2+ cohort CT (plus trastuzumab in 54% of pts) was administered in 57/97 pts (59%) and in TN pts 51/74 (69%). Median FU was 67 months. To date 14% of pts recurred. The 5-yr disease free survival (DFS) and overall survival (OS) were 89.8% and 98.0%. DFS according to different cohorts is shown in the table.

			5-yr DFS (%)	P
All	pT1	a	96.3	0.35
		b	89.2	
		c	89.4	
ER+	pT1	a	100	0.12
		b	93.6	
		c	89.8	
TN	pT1	a	100	0.65
		b	76.8	
		c	85.2	
HER2+	pT1	a	100	0.40
		b	78.7	
		c	85.0	

In pT1bc pts there is a higher rate of recurrence (HR 1.73, 95% CI 1.06–2.83; p 0.03) in HER2+ and TN cohorts and DFS according to tumour size is b+c vs a with HR 2.20 (95% CI 0.70–6.93; p 0.18). At the Cox univariate analysis Ki67 (HR 1.57, 95% CI 1.0–2.48, p=0.05) and histologic grade (G3 vs G1 and 2, HR 2.01, 95% CI 1.32–3.07, p=0.001) are significant factors while at the multivariate analysis histological grade is confirmed as independent factor (HR 2.10, 95% CI 1.28–3.45, p=0.003).

Conclusions: pT1b or c, N0, HER2+ and TN BC have a significant high risk of recurrence. The better prognosis of pT1c HER2+ and TN pts is presumably related to the high percentage of pts treated with adjuvant therapy. Effective therapy should be considered for all these unfavourable prognostic subgroups. Data collection is ongoing and update results will be presented.

5188

POSTER

Population Survey on Swedish Women's Attitudes Towards Tailored Mammography Screening Based on Individual Risk for Breast Cancer

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Background: The ongoing Karma study aims to identify risk factors for breast cancer, including genetic factors, to tailor prevention programs (www.karmastudien.se). However, little is known about the attitudes of women towards this approach. Thus, a web-based questionnaire was developed and pilot tested.

Material and Methods: 200 randomly selected women in Sweden between 20 and 70 years of age were sent a letter including information about the study and a log in to the web-based questionnaire. The questionnaire assessed women's interest in getting information about personal risk for breast cancer, reasons for wanting or not wanting to know, willingness to convey personal information including blood for genetic analysis to the health care system, preferred ways to get the information about individual risk, and willingness to participate in screening programs based on individual breast cancer risk.

Results: A total of 61 women responded. Most women (84%) reported that they were interested in getting knowledge about their breast cancer risk and listed 'Avoid worrying' as their major reason for wanting to know. A majority of them responded that they trust the healthcare system and feel comfortable in giving personal information, including blood for genetic testing (61% resp. 70%). Most women were not opposed to the idea of receiving their cancer risk information by a phone call or a letter, even though they preferred receiving the information during a consultation. 98% of the women could see themselves having mammograms no matter how often, whereas 84% could also see themselves having mammograms less than every two years.

Conclusions: Women who consented to participate in this attitude study report a positive attitude towards breast cancer risk knowledge and are not opposed to the idea of personalized screening programs based on their individual risk profile. Since selection bias may have influenced our results, a larger population-based study has been launched, which takes every effort to increase the response rate.