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Indications of adjuvant chemotherapy for breast cancer according to local guidelines, recursive partition and Adjuvant! Online: how to improve patient management?

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Background: Adjuvant treatments are decided according to guidelines. However, many individual factors, such as performance status, patient refusal, complex interactions between factors (discrepancies between grade and Ki67 for example) and complex cases (borderline age, . . .) could introduce discrepancies between guidelines and final decision.

The aim of this study was to quantify discrepancies and to assess if machine learning could take into account this fact, efficiently redefine guidelines and eventually improve patient management.

Material and Methods: Between 2003 and 2005, 581 consecutive patients underwent surgery for breast cancer in our institution. Patients, tumours characteristics, adjuvant treatment and outcome were recorded. We compared three models for the decision of adjuvant chemotherapy: our local guidelines, recursive partition model build with effective received treatment and the risk of recurrence on Adjuvant On line.

Results: The rate of decisions that were compliant with the reference guideline was 13.3%. The recursive partitioning model was mainly based on nodal status and Ki67. It did not improve significantly the virtual compliance: 11.5%, demonstrating that non-compliance was individual-based and did not involve particular subgroups. Survival curves found significant difference between patients who rightly received or not chemotherapy according to the models and patients wrongly managed. Best overall and disease free survival occurred for patients who rightly received no treatment. Interestingly patients who "inadequately" received chemotherapy had a decreased survival, suggesting that the decision to give chemotherapy was correlated with a poorer prognostic. Adjuvant On Line discriminated correctly patient prognosis and could have been used to allocate adjuvant treatment in a risk-based intent to treat.

Conclusion: More than 10% of patients did not received adjuvant chemotherapy according to guidelines. This decision was individual based and cannot be corrected by recursive partitioning. Adjuvant On Line discriminated correctly patient prognosis and could have been used to allocate adjuvant treatment in a risk-based intent to treat.

Wednesday, 24 March 2010 18:15–19:15

POSTER SESSION

Educating the patient and breast cancer specialist

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Pre-counselling information seeking and health behaviours among unaffected high-risk women

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Background: High-risk women are often referred by their GP to risk assessment clinics for estimation of their risk and to discuss risk management. The High-Risk Breast Assessment clinic of The Ottawa Hospital Women's Breast Health Centre provides risk counselling for women with: 1) demonstrated or suspected BRCA1/2 genetic mutation in the family or the patient, 2) high-risk benign pathology such as lobular carcinoma in situ or atypical hyperplasia, 3) prior thoracic radiation therapy or 4) Gail score >1.7. Depending on actual risk level, recommended preventive measures include clinical examination (CBE) every 6−12 months, yearly screening, prophylactic surgery (PS), pharmaco-prevention and adoption of a healthy lifestyle. We undertook a study to examine the level of interest for these options and the lifestyle and surveillance behaviours among high-risk women prior to attendance at the clinic.

Material and Methods: Data from 60 high-risk women (mean Gail score=2.14) aged 28−68 (mean age=47) who completed an intake questionnaire before their first visit at the High-Risk Breast Assess clinic were analyzed.

Results: A majority of women indicated that they were interested in discussing screening schedule (97%) and lifestyle choices (90%). Interest in screening was related to age ($p < 0.05$), whereas interest in lifestyle was affected by perceived risk ($p < 0.1$) and by the number of first degree relatives (FDR) with breast cancer ($p < 0.1$). Most women had no interest in pharmaco-prevention (no=70%) or in PS (no=75%). Women interested in tamoxifen had lower perceived risk than uninterested women (48 vs 67%, $p < 0.05$). Although 76% reported having yearly CBE, only 47% had yearly mammogram and only 34% self-examined their breast every month (BSE). Women who did not have yearly mammography had higher BMI ($p < 0.1$), and those who did not perform BSE were younger (44y vs 51y). Though 85% were non-smokers, 44% did not exercise regularly and 80% drank alcohol regularly. Older women were more likely to exercise ($p < 0.1$).

Conclusions: Before attendance at a high-risk clinic, high-risk women seek information on early detection and lifestyle as options to manage their risk. However, <50% are appropriately screened and the majority have lifestyle behaviour that increases their risk for breast cancer. These results reinforce the need to provide education on breast cancer risk management to high risk women and their primary care providers.

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Care continuity after discharge from the breast surgery division

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Background: Returning to their homes is a particularly critical moment for patients, both psychologically and clinically: they need not only a number of follow-up wound dressings, but also a lot of information on how to solve possible problems caused by their disease. We have a dedicated outpatients service to discuss pathological aspects and to assess wound evolution. From interviews and telephone calls, it emerged that post-discharge care was lacking and inadequate to patients' requests. There is a need to improve the Service by offering patients care continuity and reassurance

Materials and Methods: We applied the following solutions:

1. A phone line dedicated to patients discharged was activated and 3 dedicated nurses were chosen from the Breast Surgery Division who underwent a period of training. During the morning dedicated nurse follows patients'discharges while in the afternoon the same nurse follows outpatients service.
2. An informative booklet containing all Frequently Asked Questions was published and evaluated by a questionnaire.
3. An existing database dedicated to multidisciplinary decision-making for breast cancer patients was modified and improved. A user manual was created.
4. Several informative booklets were created and are currently in use.
5. Questionnaire was created to evaluate the post-discharge outpatient service.

Results: The above-listed interventions yielded the following results:

1. *MULTIDISCIPLINARY-DECISION-MAKING DATABASE:* all medical personnel can easily access decisions on post-operative treatments both chemotherapy and radiotherapy
2. *Referrals*: patients coming from other parts of Italy can be treated in their home town by physicians chosen by IEO
3. *Questionnaire on booklet*: the booklet was highly appreciated (over 50% of patients evaluated it 10/10)
4. *Questionnaire on outpatient care quality*: First visit and surgery resulted as critical moments. On a 1−5 scale, the Service organization scored 4.73; personnel's competence scored 4.84 and the informative booklet scored 4.88.

Conclusions: The dedicated nurse has become a reference point for both patients and clinicians. The number of telephone calls to both the ward and the dedicated line has decreased, proving that during post-discharge outpatient interview patients are given exhaustive and clear information which aims at improving wellbeing at home, where the patient has to face the physical and psychological effects of their operation.

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Breast cancer patients' treatment related knowledge after clinical pathway in the field of empowerment

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Background: The aim of patient education is to increase patient's knowledge and competence about her health problems and cure. With knowledge and competence, the breast cancer patient can be empowered with her health problems and be enabled to participate in decision about her care. The essential part of empower process is knowledge. In the model of empowerment by Leino-Kilpi *et al.* [1] the knowledge is the basic element to empower, knowledge is the key to gain control over one's situation. There is developed a theoretical approach to empowerment which includes bio-physiological, functional, experiential, ethical, social and financial dimensions of empowerment. The purpose of this study is to report the results of descriptive study that evaluated the breast cancer patients' treatment related knowledge about breast cancer after treatment process.

Material and Methods: In spring 2009 30 breast cancer patients in South-Western health District of Finland were surveyed with 'Knowledge test for breast cancer patient', which is a twelve item 'yes/no/don't know' questionnaire. The main research variables were the 6 subscales of empowerment dimensions. The data was collected a year after breast cancer diagnosis. It was possible to have 2 points from each subscale.

Results: Patients received test average 8.87 point knowledge of the twelve possible points. The range of the right answers was from 4 to 11. The mean from all subscale was 1.48. Patients knew best bio-physiological (1.77), ethical (1.67), and experiential (1.50) dimensions of empowerment related knowledge. Patients had less knowledge related to functional (1.47), financial (1.37) and social (1.10) dimensions of empowerment.

Conclusions: Patients knew best facts related to medical care but they didn't know what kind of help they could have from healthcare professionals or how to act to maintain their health. The results shows that patients need more education in all dimensions of empowerment.

References

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A comparison of physician and patient perceptions of clinically important endpoints in the treatment of Metastatic Breast Cancer (MBC)

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Background: To examine and compare the clinical trial endpoints physicians and patients consider to be important in MBC treatment decision making, amongst a cohort of Canadian oncologists and patients.

Methods: 28 breast oncologists responded to a secure, anonymous, and self-administered online survey. 52 Patients with MBC were also surveyed through a self-administered paper survey. Results were assessed using descriptive statistics.

Physician results: In the first line MBC setting, 52% believed overall survival (OS) was **the most** important endpoint considered in choosing a specific therapy, and 48% believed progression-free survival (PFS) was **the most** important. 48% thought that a minimum meaningful incremental improvement in OS from a first line MBC therapy was 4−6 months, and 44% believed 2−4 months was meaningful. 60% of oncologists believed that their patients also consider improvement in OS to be the most important endpoint, and 36% believed that overall QOL is the second most important factor to patients with MBC.

Patient results: The vast majority of patients believed **the primary** goal of their treatment(s) was to prolong life (88%). 63% also believed slowing tumour growth was a goal of treatment; shrinking tumour burden, and improving quality of life were also considered goals of treatment according to 62% of patients. 50% felt improving symptoms and pain were important therapeutic goals. 54% of patients believed prolonging survival was **the most** important endpoint in accepting MBC therapy, and 17% thought shrinking tumour size was the most important. In considering a new treatment for MBC compared to standard options, 46% of patients thought **more than 12 months** was the minimum improvement in overall survival (OS) they would consider as making the treatment worthwhile, 17% thought 10−12 months was acceptable, and another 10% thought only 1−2 months would be a minimal acceptable improvement in OS.

Conclusions and Discussion: Over half of patients and physicians surveyed consider OS as **the most** important endpoint in accepting therapy for MBC. However, physicians appear to consider much smaller absolute improvements in OS and PFS (2−6 months) as significant enough to adopt therapies, while almost half of patients required **a greater than 12 month** improvement in OS to consider a treatment worthwhile. This study is limited by small response numbers. Nonetheless, the data highlights disparities between oncologists and patients in the relative ranking of defined therapeutic endpoints, and in MBC treatment expectations. It thus emphasizes the ongoing need for thorough discussion of treatment goals with patients and for clinical trials to bring about meaningful results to both patients and physicians alike.

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The conflict between survival and fertility post breast cancer treatment − attitudes and beliefs of young women with breast cancer

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Background: The use of chemotherapy and hormone treatments in young women with breast cancer carries significant implications for their fertility. Increasingly, nulliparous women experience fertility dilemmas due to rising survival rates and the trend for pregnancy delay. This qualitative study investigated women's responses to being told that treatments affected their fertility and their attitudes towards fertility options. In addition, it examined how health services impacted on their experiences.

Methods: Twenty-four women with early stage breast cancer, who were under 40 at diagnosis and who were fluent in English participated in 3 focus groups. Seven participants had attended specialist fertility services as part of their management. A semi-structured interview was also conducted with one participant. Focus groups lasted 1.5 hours, with a question schedule loosely based around themes generated by literature review. Discussions were transcribed verbatim and data analysed using content analysis. Participants were subsequently asked to member check the themes generated.

Results: The priority for most participants was survival, although women without children were more willing to take risks. The women felt that the cancer and its treatment had robbed them of their choice regarding fertility decisions. They worried that changes to treatment in order to reduce its impact on fertility, pregnancy post breast cancer and methods of egg harvesting carried a significant risk to survival. Anxiety appeared to be increased by inconsistent and contradictory advice from health professionals. Those who had attended specialist fertility services were more likely to have had objective advice and had greater confidence that they were making informed decisions.

Conclusions: Young women with breast cancer face complex decisions regarding their fertility and treatment options. Survival remains the most important priority for the majority of women. Although there is a paucity of evidence concerning many fertility issues, it is essential that women are fully informed of options available to them and any potential risks involved in a coherent, objective fashion. Specialist fertility services are an important means of maximising fertility choices for these young women.

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Patients prefer meeting other patients to clinical photographs when discussing reconstructive surgery

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Background: Breast reconstruction after mastectomy is an emotive issue for most patients with breast cancer. Understanding the pros and cons of various techniques, deciding what they want for themselves and assessing their own surgeon's outcome at a difficult time can be very distressing to patients. Information overload from the internet often adds to their anguish. Clinical photographs are the preferred methods of showing outcomes of various types of breast reconstruction to pre-operative patients who are awaiting breast reconstruction. Most surgeons keep an album of their surgical outcome to facilitate the decision-making process for their patients and patients often ask their surgeons to show their results in the form of clinical photographs. However photographs do not convey the actual experience felt of undergoing these procedures − right from the preoperative anxiety through to post operative experience and outcomes. Patient of the Surgeon (AS) have formed a support group and have been willing to share their experience with new patients. We investigated whether meeting such patients was better than seeing clinical photographs for assessing surgeon's outcome in patients awaiting breast reconstruction.

Methods: All patients awaiting breast reconstruction were seen in a dedicated breast reconstruction clinic and offered two visits. The first is for information and the second for planning their proposed operation. The pros and cons of various techniques were discussed and patients were shown clinical photographs of the surgeon's (AS) outcome. All patients were offered the opportunity to meet with or speak to other patients who have undergone similar procedures. This was facilitated by the breast care nurse who provided the telephone contacts for the two parties. All patients were asked to state their preferred method and give their reasons for it.

Results: 45 reconstructive and symmetrising procedures were carried out in 30 patients between September 2008 and September 2009. Nipple reconstruction was done in 2 patients, LD reconstruction in 14, and Tissue