Friday, 18 April 2008 12:30–14:30

POSTER SESSION

Local regional treatment/Surgery

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Fluorescence navigation system with indocyanine green for sentinel lymph nodes biopsy in breast cancer patients

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Background: Sentinel lymph nodes (SLN) biopsy is a useful method to assess axillary lymph node status in early breast cancer. Recently, a vital dye, radioactive tracer, or a combination of both is used to detect SLN. The dye-guide method is convenient and safe compared with the radioactive tracer-guided method, but lower identification is a problem. Indocyanine green (ICG) fluoresces by irradiating the excitation light when it unites with the serum protein. In the study, we present a novel method that allows the detection of SLN with high sensitivity using ICG fluorescence imaging.

Material and Methods: After the induction of general anesthesia, the combination dye of ICG and indigocarmine was injected intradermally in the areola for 0.5 ml. Fluorescence imaging device (Photodynamic Eye: Hamamatsu Photonics Co., Hamamatsu) was obtained using a charge coupled camera and light emitting diodes at 760 nm as the light source. Subcutaneous lymphatic channels draining from the areola to the axilla or other directions were visible by fluorescence imagings immediately. The SLN were then dissected by fluorescence navigation.

Results: This study enrolled 52 patients with clinically node-negative breast cancer. Their average age was 52.3 years. There were 32 cases with T1 lesions and 20 cases with T2 lesions. Subcutaneous lymphatic channels and SLN were successfully visualized in all patients. One lymphatic channel to the axilla was 71% (37/52), two channels were 25% (13/52), and three channels were 4% (2/52). The channels to other directions were not seen. The number of fluorescence SLN ranged from 1 to 6 (mean: 2.9), and blue dyed SLN ranged from 0 to 3 (mean: 0.9). In the latter, SLN were not identified in 19 patients (identification rate: 63%). Thirteen patients had lymph node metastases pathologically. All of them were recognized by fluorescence imagings, but, in three patients, lymph nodes with metastases were not identified by a vital dye. There were no intraoperative or postoperative complications associated with SLN identification.

Conclusions: This ICG fluorescence imaging technique is feasible and safe to detect SLN with less invasive and real-time observation. We hope that this method will provide with detection rate and negative predictive value in SLN navigation surgery.

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Predicting the individual clinical benefit of prophylactic bilateral mastectomy and oophorectomy in BRCA carriers with breast cancer

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Background: Breast cancer patients with a BRCA mutation have a markedly elevated risk for new cancers. Health care providers must communicate complex information about risk-reducing surgeries. We created models that provide individualized 5-year breast cancer survival and contralateral breast cancer predictions and the benefit of prophylactic mastectomy and oophorectomy.

Method: The study population was 491 women treated for stage I or II breast cancer between 1975 and 2000 and who had a known mutation or were from a family with a documented mutation (BRCA1, n = 327; BRCA2, n = 152; both BRCA1 and BRCA2, n = 12). The independent variables were age (less than 50 years old vs. 50 years old or older), tumor size (continuous variable), ER status (present vs. absent), and lymph node status (present vs. absent). Logistic regression was used to create the models. The output of one model was the probability of each outcome for bilateral mastectomy, and the output of the other model was the probability of each outcome for oophorectomy. Accuracy is assessed by the ROC.

Results: See the table. The 5-year breast and ovary cancer-specific survival model did not differ significantly from the 5-year breast cancer-specific survival model and is not reported here.

	Risk reduction mastectomy (RRM)	Risk reduction salpingo-oophorectomy (RRSO)
5-year breast cancer-specific survival	Model ROC = 0.707 RRM was not significant	Model ROC = 0.804 RRSO was significant
5-year contralateral breast cancer	Model ROC = 0.749 RRM was significant	Model ROC = 0.611 RRSO was not significant

Conclusions: In BRCA positive women with breast cancer, the model of risk reduction mastectomy for 5-year contralateral breast cancer and the model of risk reduction salpingo-oophorectomy for 5-year breast cancer-specific survival were highly accurate predictors of an individual woman's risk of contralateral breast cancer and disease-specific survival. These preliminary results await validation on an independent dataset. The individualized output of the predictive models will then be incorporated into a decision support tool for use in cancer risk counseling.

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The significance of the Van Nuys Prognostic Index in the management of ductal carcinoma in situ

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Background: Debate regarding the benefit of radiotherapy after local excision of ductal carcinoma in situ (DCIS) continues. The Van Nuys Prognostic Index (VNPI) is thought to be a useful aid in deciding which patients are at increased risk of local recurrence and may benefit from adjuvant radiotherapy (RT). Recently published interim data from the Sloane project has showed that the VNPI score did significantly affect the chances of getting planned radiotherapy in the UK, suggesting that British clinicians may already be using this scoring system to assist in decision making. This paper independently assesses the prognostic validity of the VNPI in a British population.

Materials and Methods: A retrospective review was conducted of all patients (n = 215) that underwent breast conserving surgery for DCIS at a single institution between 1997–2006. Kaplan Meier survival curves were calculated for the total sample and for a series of univariate analyses examining various prognostic factors including the VNPI. The log rank test was used to determine statistical significance in differ survival rates. All analyses were conducted using SPSS software, version 14.5.

Results: The observed and the actuarial 8 year disease free survival rates in this study are 91% and 83% respectively. The VNPI and the presence of comedo necrosis were found to be statistically significant prognostic indicators.

Conclusions: This study of 215 patients with DCIS who were treated with local excision and observation alone is one of the largest series in which recurrence is unaffected by radiation therapy, hormone manipulation or chemotherapy. It has therefore afforded us the opportunity to assess the prognostic impact of patient and tumour characteristics free of any potentially confounding treatment related influences. The results suggest that the VNPI can be used to identify subsets of patients who are at elevated risk of local recurrence and may potentially benefit from RT.

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Surgical aspect in NOAH Phase III trial (neoadjuvant trastuzumab in HER2-positive locally advanced breast cancer)

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Background: Patients (pts) with locally advanced breast cancer (LABC) are typically treated with primary chemotherapy, being not eligible for immediate surgery, mastectomy being the recommended approach. Here we present data from pts with HER2-positive LABC included in the randomized phase III NOAH trial.