Friday, 23 March 2012 08:00–08:45

EUROPA DONNA TEACHING LECTURE

Lifestyle Factors and Breast Cancer − Recent Study Results and What They Mean

408 Invited

Lifestyle Factors and Breast Cancer − Recent Study Results and What They Mean

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Breast cancer is the most common cancer of women in high-resource countries: however, over the past twenty to thirty years, data support a trend of increasing incidence and mortality from breast cancer in lower resources countries. Multiple risk factors have been identified for breast cancer and can be divided into those that cannot be modified and those that are potentially modifiable. Diet is part of this later group. A role for diet and life style in cancer etiology has been suggested in part because of the large international variation in cancer rates and may be ascribed to the antioxidant properties of selected nutrients, influence on inflammatory and immune response, on the progression of cells through the cells cycle and DNA repair, stimulation of growth factors and potential antiestrogen influence of some nutrients. Some foods and nutrients have also been suggested to increase the risk for breast cancer through an increase in circulating levels of endogenous estrogen, insulin like growth factor 1 or other growth factors. Energy balance, the interplay of caloric intake, physical activity and metabolic rate is another important factor impacting breast cancer risk through mechanisms not entirely understood. Among the prospective epidemiological studies conducted on diet and breast cancer to date there is no clear association with diet except for alcohol consumption in addition to overweight and weight gain. Recent prospective studies have provided some additional information in relation to breast cancer risk with regard to specific phenotypes and critical period of exposure during lifetime. Interventions studies have been mostly in conclusive except for supplementation with vitamin D. Physical activity intervention have showed some effect on intermediate biomarkers of breast cancer. In this presentation we will review the latest finding in relation with lifestyle and breast cancer and provide practical recommendations.

Friday, 23 March 2012 10:30–11:30

PROFFERED PAPER

When can Diagnostic Information be Trusted?

409 Proffered paper oral

Concordance of St. Gallen Intrinsic Subtypes in Core Biopsies and Related Surgical Specimens of Breast Cancer

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Background: There are many reasons to provide patients and doctors preoperatively with more prognostic and predictive information about a newly diagnosed breast cancer. To evaluate the relevance of intrinsic breast cancer subtypes (IBCST) classied on core biopsy (CB) we estimated the concordance between pre- and postoperative estimation of IBCST according to the St. Gallen clinicopathological criteria.

Methods: Core biopsies (CB) and related surgical specimen (SSP) of 285 consecutive breast cancers (were graded prospectively according to the Nottingham Grading System (NGS) including the score for mitosis determined in 10 high power fields of defined field diameter (Grade 1: 52, Grade 2: 122, Grade 3: 114)). IBCST were estimated using the clinicopathological criteria given by the St. Gallen Consensus Conference 2011. To do this, we used the prospectively estimated results for Estrogen-, Progesteron-, and Her2-status and combined this with levels of proliferation. Proliferation was retrospectively assessed by using the mitotic activity index (MAI) as defined by the WHO 2003 with a cut-off of $\geqslant$10 for high versus or low as evaluated by Baak et al. 2008. Concordance between IBCST results of CB and SSP and PPV of IBCST of CB were calculated.

Results: The 285 breast cancers were finally classified in SSP as follows: 60% (171) Luminal A, 18% (52) Luminal B, 7% (19) Luminal B Her2+, 3.5% (10) Her2 und 11.5% (33) Triple-negative. Concordance of IBCST assessment in CB vs. SP was 100% (171/171) for Luminal A, 29% (15/52) for Luminal B (Her2−), and 100% for Luminal B (Her2+) (19/19), Her2+ (10/10), and Triple-negative subtypes (33/33), respectively. None of the Luminal A cancers was overestimated in CB as a more unfavourable subtype, whereas 71.2% (37/52)of Luminal B (Her2−) or 52.1% (37/71) of all Luminal B cancers, respectively, were underestimated as Luminal A in CB. For all other subtypes, the agreement was complete (100%). This came out with an underetimation rate of 13% (37/285). for all cancers. Whereas the PPV of IBCST assessment in CB is 100% for the subtypes Luminal B, Her2+, and Triple negative, PPV of Luminal A in CB is only 82% (171/208). The reason is underestimation of proliferation in CB.

Conclusions: Using the St.Gallen clinicopathological definition of intrinsic subtypes of breast cancer and the MAI as the most reproducible tool for proliferation measurement the agreement between CB and SSP and the PPVs of CB based subtyping are generally high.

This means that intrinsic subtyping on CB specimen can be used for preoperative decision making in the vast majority of cases. However, for the Her2 negative subgroup of Luminal B subtype in CB the agreement with SSP is lower due to underestimation of proliferation.

410 Proffered paper oral

Optimising Intraoperative Assessment of Sentinel Lymph Nodes in Breast Cancer − One Step Nucleic Acid Amplification Assay Compared with Imprint Cytology

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Background: Current intraoperative methods for assessment of sentinel lymph nodes in breast cancer, which include frozen section and imprint cytology, have demonstrated false negative rates up to 52%. As a result, a significant number of patients then need to undergo second surgery for axillary lymph node dissection (ALND). If more sensitive methods can be employed, they should also provide the surgeon with more detailed information intraoperatively such that the patients most likely to benefit from ALND can be readily identified.

Material and Methods: 211 sentinel nodes from 105 patients with breast cancer undergoing sentinel node biopsy at Westmead Hospital were enrolled in the study. The current method for determining nodal status intraoperatively, imprint cytology, was compared to a molecular method OSNA® (Sysmex Corp) that has previously been reported to deliver higher sensitivity and specificity. Each sentinel node was sliced at 2 mm intervals and imprint cytology was performed on each of the cut surfaces. Alternate pieces were processed for paraffin sectioning and stained with H&E and/or cytokeratin immunohistochemistry, while the rest was submitted for OSNA®. The OSNA® assay is based on the level of cytokeratin 19 mRNA present in the node and is reported as ++, + or − correlating with macrometastasis, micrometastasis and ITC/no cancer cells respectively. The imprint cytology, OSNA® and paraffin section results were then compared. The OSNA® result was not used in patient management.

Results: At the patient level, the specificity and sensitivity of OSNA® were 96.3% and 95.8% respectively, compared to 100% and 66.7% for imprint cytology. While the overall false negative rate of imprint cytology compared to paraffin sections was 38.4%, it was surprising to find that 26.3% were macrometastases. The false negative rate for OSNA® was 3.8% when compared with paraffin sections at the patient level.

Conclusions: In this study OSNA® was a more sensitive technique than imprint cytology in intraoperative sentinel lymph node assessment. In the light of the ASCOG Z011 trial results, quantifying the result (++/+) may provide additional information to assist the surgeon in deciding whether to proceed to immediate ALND or not after receipt of a 'positive' intraoperative result.