

## Breast cancer

### 65P Nottingham grade; does it influence the survival of operable breast cancer patients across all TNM stages?

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**Aim/Background:** Lymph node stage (LNS), tumour size and Nottingham grade (NG) are considered the most important prognostic factors of breast cancer (BC). However, NG is not yet incorporated in the long used TNM staging system which is meant to stratify BC patients into groups that are prognostically and therapeutically similar. The objective of this study was to assess the impact of NG on the BC specific survival (BCSS) and recurrence free survival (RFS) of operable BC patients.

**Methods:** This retrospective study included a consecutive series of TNM stage I to III BC patients who had sought the services of our unit from 2006 to 2012. These patients have been treated according to standard protocols. Data were collected through follow

up visits, clinic and laboratory records. Grading and scoring of estrogen receptors (ER), progesterone receptors (PR) and Her2 were done by a single investigator to eliminate inter-observer variation. Kaplan-Meier and Cox-regression models were used in the survival analysis.

**Results:** There were 86 (12%) NG1, 338 (45%) NG2 and 318 (43%) NG3 patients with a median follow up of 39.5 months. Five-year BCSS was 94%-NG1, 80% - NG2 and 72% - NG3 ( $p < 0.001$ ). Five-year RFS was 86% - NG1, 75% - NG2 and 67% - NG 3 ( $p = 0.001$ ). Only the LNS ( $p = 0.001$ ) had an independent effect on the BCSS and RFS of NG3 patients. LNS ( $p = 0.001$ ), PR ( $p = 0.004$ ) and Her 2 ( $p < 0.001$ ) independently affected the BCSS of NG 2 patients. The same factors affected the RFS of NG2 patients except the LNS. None of the factors considered for the multivariate analysis had an effect on the BCSS or RFS of NG1 patients. NG1 patients in TNM stage I and II had 100% five-year BCSS while it was 76.7% for stage III BCs. A significant decrease in BCSS and RFS was seen with increase in NG in the sub-groups of TNM stage III ( $p = 0.01$  and  $0.011$ ), tumours of 2cm-5cm ( $p = 0.035$  and  $p = 0.013$ ) and LNS3 ( $p = 0.002$  and  $p < 0.001$ ) BC patients.

**Conclusions:** NG categorizes BC patients into three groups with distinctly different survival outcomes. This difference is retained in the subgroups; TNM stage III, tumours of 2cm-5cm and LNS3 BCs. NG1 tumours are a homogenous group as none of the important prognostic factors affects the BCSS or the RFS. Therefore sub-categorization of TNM stage III by NG is suggested.

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