

Research paper 1

## The correlation between beta-catenin expression pattern and adverse prognostic factors in a cohort of invasive breast carcinoma patients in Sri Lanka

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**Introduction and objectives:** Breast carcinoma (BCa) is the most common malignancy among females and the second most common cause of cancer related deaths. Due to heterogeneity of BCa, morphological classifications with molecular parameters are being studied widely, the subcellular location of beta-catenin being one of them. This study was carried out to determine the expression pattern of catenin and its association with adverse prognostic factors in a cohort of BCa patients in Sri Lanka.

**Method:** A cross sectional descriptive study was performed on 147 cases of BCa, including mastectomies and wide local excisions received at two teaching hospitals. Details of age, histological grade, lymphovascular invasion, Paget disease, ductal carcinoma in-situ (DCIS) lymph node involvement and hormone receptor status were retrieved from the request forms and reports. The expression of -catenin at the membranous, cytoplasmic and nuclear location was assessed by immunohistochemistry on a representative block. The intensity of expression was scored +1 to +3 in comparison to selected controls. The histoscores were calculated by multiplying the intensity score by the percentage of positive cells. The correlation between -catenin expression and adverse prognostic factors were calculated using Pearson correlation.

**Results:** Out of 147 cases, 123 (84.2%), 83 (57.3%) and 18 (12.3%) cases showed membranous, cytoplasmic and nuclear beta-catenin expression, respectively. There was a statistically significant correlation between nuclear beta-catenin histoscores and lymph node positivity and Paget disease.

**Conclusion:** Lymph node positivity, a known adverse prognostic factor, showed significant correlation with nuclear -catenin expression. Nuclear beta-catenin positivity showed a positive correlation with Paget disease, but its prognostic significance is yet to be determined and merits further studies.

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