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Evaluation of hormonal receptor status and its correlation with proliferative marker Ki67 in breast cancer

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Background: Breast cancer is the leading cause of death in women. Hormonal receptor status is the most important prognostic and predictive marker for breast cancer. It has been used in management of breast cancer since 1970s as an indicator of endocrine responsiveness and prognostic factor for recurrences. Again complete study by breast cancer panel namely Estrogen Receptor, Progesterone Receptor, Her2/neu classify breast tumours into 5 molecular subtypes. Among those two types of hormonal receptor positive breast cancers are derived Luminal A, is defined by as only Estrogen receptor [ER] and Progesterone Receptor [PR] positive by tumour cells and Luminal B, is defined by ER/PR as well as Her2/neu positive by tumour cells. Markers of proliferation, and specifically Ki-67-labelling index, are also considered important for the determination of prognosis.

Aim and Objective: To evaluate hormonal receptor status in invasive breast carcinoma and study the proliferative behavior of both Luminal A and B were examined by Ki67 expression.

Setting and Design: A prospective analysis of 112 breast patients was undertaken to study the histomorphological features followed by immunohistochemical study in Department of Pathology. The mastectomy specimens were received from Department of Surgery and private hospitals of surrounding area.

Material and Methods: Histological confirmation of breast cancer, special features, histological Bloom Richardson Grading [BRG] was done. All surgically rejected lymph nodes were examined for presence of secondary and ascertained early vs advanced status of breast cancer. Immunohistochemistry profile for ER PR, Her2neu, Ki67 were done on formalin-fixed paraffin embedded tissue blocks, using ER antibody clone and PR antibody clone using standard procedure. Ethical clearance was received before start of the study from Institutional Ethics committee for Human research of study institution.

Results: The average age of breast cancer presentation in this study was 44.6 years. Hormonal receptors were positive only in 47% of breast cancer cases. Out of that Luminal A was 31% and Luminal B was 16%. The Ki67 expression pattern showed a statistically significant correlation with Luminal A as low proliferation whereas Luminal B showed a higher proliferation pattern.

Conclusion: Hormonal receptor status was taken as good prognostic factor but it is not an independent status. The co-expression of Her2neu with HR receptor was found to have more aggressive behavior. Proliferation pattern of Ki67 Luminal A and Luminal B indicates different biologic entity.

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