

Title: Cyclin D1 and BRCA1 as prognostic markers for breast carcinoma in Indian context: correlation with various clinicopathological factors including immunohistochemical surrogate for molecular subtype of breast carcinoma

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Cyclin D1 is a cell cycle regulator which acts by binding with cyclin dependent kinase and inactivating retinoblastoma protein by hyperphosphorylation. Studies on Cyclin D1 have shown inconsistent and conflicting results regarding its prognostic role.

BRCA1 is a tumour suppressor, whose mutation together with estrogen-estrogen receptor signalling contributes to breast tumourigenesis by providing metabolic support for cancer cell growth.

Various prognostic parameters have been described and validated for breast cancer, but search for newer prognostic factors continues since existing parameters don't provide sufficient information for accurate risk assessment and tailor-made treatment planning. Thus, in St. Gallen International Expert Consensus on Primary Therapy of Early Breast Cancer, 2011, breast carcinoma was classified on molecular basis. Further this correlated well with immunohistochemical expression of tumours and was called surrogate molecular classification.

This study aimed towards evaluating Cyclin D1 and BRCA1 expression in breast carcinoma and correlating them with various clinicopathological parameters.

Fifty cases of breast carcinoma were studied and their pTNM staging and Bloom Richardson grading done. Immunohistochemistry for Cyclin D1, BRCA1, ER, PR, Her2neu and Ki67 was performed, and they were classified into surrogate molecular subtypes (immunophenotypes).

Cyclin D1 and BRCA1 positivity was seen in 54% and 58% cases respectively. Cyclin D1 showed statistically significant decreasing positivity with increasing grade as well as increasing stage, while these findings were vice versa for BRCA1. Cyclin D1 and BRCA1 showed intriguing and statistically significant correlations with immunophenotype, discussed in the study.

This is one of the initial studies from India analyzing Cyclin D1 and BRCA1 expression in breast carcinoma and correlating them with immunophenotypes, in addition to other parameters.

Significant associations of Cyclin D1 and BRCA1 with stage, grade and immunophenotypes indicate their predictive and prognostic value. These may aid in investigating the response and clinical outcomes of treatment targeting Cyclin D1 and BRCA1.

Biography

Gireesha Rawal is a budding pathologist. She is passionate towards patient care and conducting research studies targetted at improvement of their health and wellbeing. Her areas of interest include breast pathology, immunopathology and female genital tract pathology. She has published several case reports and papers in reputed journals.

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