

CLINICAL UTILITY OF TYPE 1 GROWTH FACTOR RECEPTOR EXPRESSION IN COLON CANCER

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Purpose: The aim of this study was, by evaluating the expression pattern, to determine the prognostic significance of the type 1 growth factor receptor (T1GFR) family (HER1, HER2, HER3, HER4) expression by colon carcinoma.

Methods: Tissue microarrays were constructed using tumor samples from a cohort of 127 resected colon cancer patients, and lymph nodes containing tumor deposits from a subgroup of 47 patients. Protein expression was measured by immunohistochemistry, and survival outcomes were calculated based on a median follow up of 3 years. Clinicopathologic variables and marker expression were evaluated for their prognostic significance by employing univariate and multivariate analyses. Correlation between primary and lymph node expression was determined by Spearman correlation.

Results: Overall survival (OS), disease specific survival (DSS) and disease free survival (DFS) were 75.4%, 83.9% and 80.5% respectively. Moderate to strong expression of HER1, HER2, HER3, and HER4 in tumor samples was 31.7%, 0%, 11.5% and 36.7%, respectively, and 29.5%, 0%, 10.5% and 24.3% in nodal samples, respectively. On univariate analysis, HER3 expression, TNM stage, positive margins, and the presence of vascular and lymphatic invasion, were significantly associated with decreased DSS and DFS. On multivariate analysis, positive margins, lymphatic invasion and HER3 expression were significant predictors of DFS independent of disease stage. Positive margins and HER3 expression were also significant predictors of DSS. There was significant correlation of 0.493, 0.394, and 0.433 between tumor and lymph node expression of HER1, HER3, and HER4 respectively. HER3 expression in tumor samples was also significantly associated with lymphatic invasion and distant cancer recurrence.

Conclusions: HER3 expression by tumor tissue has prognostic utility in the management of individuals diagnosed with colon carcinoma. Also, there is a significant correlation between tumor and lymph node expression of T1GFR family members suggesting that the receptor status of the primary tumor may, even in patients harboring nodal disease, be used to guide targeted therapy selection.