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Expression of p53 in colorectal carcinoma: Correlation with clinicopathologic features

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Background: The p53 gene mutation is closely related to carcinogenesis in most malignant diseases. The main function of wild p53 protein is to maintain the integrity of genes by detecting mutations and preventing the division of cells with damaged DNA. The mutated form of p53 protein is overexpressed due to an extended half-life and can be easily detected by immunohistochemistry. Objective: To estimate the frequency of p53 protein overexpression in colorectal carcinoma and its correlation with some clinicopathologic variables. Methods: One hundred paraffin-preserved colorectal carcinoma samples were collected randomly from patients undergoing tumor resection from April 1995 through April 2001 In Omid Hospital, affiliated to Mashhad University of Medical Sciences, Mashhad, Iran. The overexpression of p53 protein was studied using a monoclonal antibody (clone DO-7; Dako). the number of cells stained were classified semiquantitatively as (-): <5% positive cells, (+): 5 - 25% positive cells, (++): 25 - 75% positive cells, and (+++): >75% positive cells. Clinicopathologic data including gender, age, tumor location, histologic type, and stage (Astler-Coller) were collected from the files maintained at the Department of Pathology. The correlation between p53 protein overexpression and each variable was evaluated using Chi-square analysis. Results: p53 staining was positive in 59 of 100 specimens. Out of these 100 specimens, 16 were weekly (+), 16 moderately (++), and 27 intensely (+++) positive for p53 protein overexpression. There was no significant correlation between p53 staining and gender (P = 0.34), age (< 40 vs. 40 yr; P = 0.74), site of tumor (right vs. left colon and rectum; P = 0.26), pathologic type (mucinous vs. nonmucinous; P = 0.63), and stage of the disease (P = 0.12). Conclusion: Considering the p53 protein overexpression in a relatively high percentage of patients, it seems that p53 mutation plays an important role in development of colorectal carcinoma. There was no significant association between p53 protein expression and some common clinicopathologic variables such as age, gender, site of tumor, pathologic type, and stage of the disease.

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Author keywords

Colorectal carcinoma; Immunohistochemistry; P53 gene; Protein expression

Indexed Keywords

EMTREE drug terms: DNA; monoclonal antibody; paraffin; protein p53

EMTREE medical terms: adult; age; aged; article; cancer staging; carcinogenesis; cell count; cell division; chi square test; clinical feature; colorectal carcinoma; colorectal surgery; controlled study; correlation analysis; DNA damage; female; gene function; gene mutation; gene overexpression; histopathology; human; human cell; human tissue; immunohistochemistry; Iran; major clinical study; male; medical record; pathophysiology; protein expression; quantitative analysis; sex difference; tumor localization; university hospital

MeSH: Adult; Aged; Aged, 80 and over; Colorectal Neoplasms; Disease Progression; DNA, Neoplasm; Female; Gene Expression Regulation, Neoplastic; Genes, p53; Humans; Male; Middle Aged; Neoplasm Staging; Retrospective Studies; Tumor Markers, Biological
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