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Expression of mismatch repair genes in colorectal carcinoma: A study of North Indian population

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Background & Aim: To study the MMR Protein expression and its Clinicopathological correlation in colorectal cancer patients in north India.

Methods: A prospective study was conducted on histologically proven patients of adenocarcinoma of colorectum in a tertiary care hospital in north India between May 2014-May 2018. MMR Protein loss was determined by using Immunohistochemistry for MLH1, MSH2, PMS2 and MSH6. SPSS version 16.0 (IBM corporation, Armonk, NY, USA) was used for statistical analysis. Continuous data were used as mean or median and discrete data were reported as number (percentage)

Results: 77 patients (49 males and 28 females) underwent resection for colorectal cancer with the median age of 52 year (16-81 years). 44% of the patients (n=34) were younger than 50 years of the age. 5 patients had associated history of malignancy in the family. 42 (55%) patients had right colon cancer, 15 (19%) left colon cancer and 20 (26%) rectal cancer. 2 patients each had synchronous and metachronous cancer. Histology revealed well differentiated tumour in 26, moderately differentiated in 15 and poorly differentiated tumour in 36 patients. MMR protein loss was seen in 23 (30%) patients. Seven (46%) of these patients were less than 50 years of age. Combined loss of MSH2 and MSH6 was seen most commonly and it was found in 6 patients. 18 (78%) patients with MMR protein loss had tumour located proximal to the splenic flexure compared to 5 (22%) located distal to the splenic flexure. There was no difference in MMR protein loss based on patients age, gender, degree of tumour differentiation, stage of the disease and tumour histological characteristics.

Conclusions & Discussion: This study revealed that there was less than 30% MMR protein loss in colorectal cancer patients in north Indian population. The loss was most commonly seen in right sided colon cancer than left.

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