INCIDENCE OF KIRSTEN-RAS GENE MUTATION AND ITS ASSOCIATION WITH CLINICAL AND PATHOLOGICAL FACTORS IN COLORECTAL CARCINOMA: SINGLE INSTITUTE RETROSPECTIVE EXPERIENCE

Maka Vinayak1, S Murali2, Kilara Nalini3
1M S Ramaiah Medical College, Bangalore, India
2M S Ramaiah Medical College, Bangalore, India
3M S Ramaiah Medical College, Bangalore, India

Introduction: Colorectal carcinoma (CRC) is the third most common cause of cancer in males and the second in females. Kirsten-RAS (K-ras) is a gene that encodes one of the proteins in the epidermal growth factor receptor (EGFR) signalling pathway. Mutation in K-ras gene in patients with colorectal adenocarcinoma develops early in the progression from adenoma to carcinoma. K-ras gene mutation status in metastatic colorectal cancers (mCRC) is predictive of response to anti-epidermal growth factor receptor therapies, such as cetuximab and panitumumab. Thus the present study is carried out to detect the incidence and clinic pathological profile of the K-ras gene mutation in our institute.

Methods: A retrospective study was conducted to evaluate the incidence and clinic pathological profile with reference to K-ras gene status in patients with colorectal carcinoma who had been treated and undergone K ras Mutation analysis by Polymerase Chain Reaction (PCR) technique on the formalin fixed paraffin embedded tumour blocks. Study was conducted over a period of five years from January 2009 to December 2013 in Department of Medical Oncology in our institute. Correlation of clinical and pathological factors with K-ras gene mutation was done.

Results: In 74 Of 144 patients with colorectal carcinoma who underwent K ras Mutation analysis, The frequency of K-ras gene mutation in CRC was 25.67% (19) with 89.5%(17) of these mutations occurring on codon 12 and 10.5% (2) on codon 13. The wild type K-ras gene was seen in 74.32%(55) of CRC. The median age was 51 years in the CRC patients with mutant K-ras gene. The male: female ratio of mutated K-ras gene was 1.37: 1. Out of the 34 CRC patients with lymph node metastases, 29.4% of them were mutant K-ras gene. In eleven patients with Stage IV CRC with K-ras gene mutation, liver was only site of distant metastases.

Conclusion: This study has shown that K-ras gene mutations are common among colorectal adenocarcinoma patients. There was no significant statistical correlation between the mutated K-ras gene and age, gender, tumour location, tumour histology, lymph node metastases and distant metastases which may be attributable to the relatively small sample size.