



Polymorphic study of OGG1 gene in gastric cancer patients of Kashmir valley

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ABSTRACT

Background: Gastric cancer is the fourth leading cause worldwide and leading cancer in several countries. Polymorphic changes in specific genes are a key event in the formation and progression of cancer. The study was carried out to check the polymorphism of OGG1 gene in gastric carcinoma in Kashmir valley, a recently reported prone area to gastric cancer. Material and method: In this study, the OGG1 genotype of 30 patients with Gastric cancer, and 20 healthy subjects were assessed by Polymerase chain reaction (PCR-RFLP) method. DNA was extracted by Sambrook and Russel method, quantified by UV spectrophotometer (Hitachi U-1800), and visualised at Gel Doc system (BioRad). The DNA obtained was amplified by PCR (Roche) and restriction enzyme- Fnu4HI (Fermentas) digestion was done on the amplified product. The primers of specific sequence were added to RFLP-PCR and polymorphism was studied. On genetic level the role of polymorphism of OGG1 gene has been widely studied across the world in different ethnic populations. Result: In this study genetic polymorphism of OGG1 gene showed 63% of gastric cancer was homozygous mutant, 26% of the cases showed heterozygous condition and 10% were homozygous normal. Almost 80% (16/20) of the normal samples showed heterozygous condition and 5% (1/20) was found to be homozygous mutant and 15% (3/20) homozygous normal. The allelic association of this polymorphism with gastric cancer and normal healthy individuals was evaluated by χ^2 (chi square test) and was found to be significant ($p=0.000084$). In gastric cancer patients the homozygous mutant condition was found to be certainly higher in cases of above 60 years of age (81%) than the ages below 60 years (57%) and association was insignificant as $p=0.3947$ and in controls 14.28% was the distribution in comparison to below 60 years of age groups 0%. Conclusion: The present study found that OGG1 polymorphism was significantly associated with gastric cancer risk in Kashmiri population so it can be concluded that there is an important role of polymorphism of OGG1 gene and may act synergistically to increase the risk of gastric cancer in the patients of Kashmir valley.

Keywords- Gastric cancer, Kashmir valley, Mutation, OGG1 gene, Polymorphism