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Manganese Superoxide Dismutase (MnSOD Val-9Ala) Gene Polymorphism and Susceptibility to Gastric Cancer

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Gastric cancer (GC) is the third most common cancer in Asia. Gastric carcinogenesis is a complex, multistep and multifactorial event. Reactive oxygen species (ROS) are considered to be involved in these processes. Manganese superoxide dismutase (MnSOD), one of the major antioxidant enzymes, constitutes first-line defense against ROS in mitochondria. It catalyzes the dismutation of superoxide radicals to H₂O₂ and oxygen in mitochondria. A substitution of T to C at nucleotide 47 changes the encoded amino acid from Val (GTT) to Ala (GCT) on the 16th residue of 24-amino acid signal sequence that helps in targeting the nascent protein to mitochondria.

In order to investigate the (T/C) polymorphism of MnSOD, the genomic DNA of 30 paraffin embedded tissue samples of gastric cancer collected from the Department, Kerman Medical School and the HRM analysis was performed.

The frequencies of MnSOD Ala/Ala, Ala/Val and Val/Val genotypes in cancer free samples were 7(23.3%), 19(63.3%) and 4(13.3%) from 30(100%) samples respectively. However, in gastric cancer patients, Ala/Ala, Ala/Val and Val/Val were observed in 5 (16.6%), 16 (53.3%) and 9(30%) (p=0.01). the frequency of MnSOD Ala allele in control and patients' sample was 54% and 43% respectively. Also, the frequency MnSOD Val allele was 44% and 56%.

we have been found the frequency of MnSOD Val-9Ala in gastric cancer patients and cancer-free samples. The HRM analysis which is a new technique represents a new mutation scanning technology without the need for time and cost consuming post-PCR processing.

Keywords: MnSOD, HRM, Gastric cancer

Biography:

Alireza Moradabadi is hard working medical laboratory scientist especially in hematology with strong analytical and communication skills, whether in innovations or markets. Interested in marketing and market research especially in modern technology hematology.