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Correlation between global genome methylation and mutation at CpG codons of p53 gene

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Background: As hypomethylation within the body of p53 gene, which is normally methylated, were found in some neoplasm and also the CG>TA transition was not detected in the CpG codons of p53 gene in gastritis lesion from Iranian patients, therefore evaluation of probable correlation between global genome methylation and alteration at CpG codon of p53 seem necessary.

Methods: For defining genotypes of CpG codons, PCR-Sequencing was done for exon 2&7 on DNA extracted from 90 paired samples of gastritis and normal tissues. To delineate global genome methylation status, firstly the DNA extracted was digested with HpaII (sensitive to methylation in recognition site) and MspI (insensitive). These enzymes leave an overhang after cutting which are then filled in a polymerase extension assay with stepwise addition of dNTPs using Pyrosequencing. By comparing the height of picks obtained from both enzymes it can be possible to evaluate global genome methylation level of normal and gastritis tissues. The HpaII /MspI ratio vary between 0-1 if the target site be methylated or unmethylated.

Results: Codons 9,245 and 248 underwent CG>AT transversion not CG>TA transition. In addition, the mean of global genome methylation was different between genotypes of codon 9(CC/CA), 245 and 248(GG/GT) and this difference was statistically significant for codon 245.

Conclusions: As we detected no CG>TA alteration in contrary with others, we should not be surprised if there is a different mechanism(s) such as hypomethylation inducing mostly G>T than G>A on the CpG codons of p53 during gastritis development in Iranian patients.

Biography

Rouhallah Najjar Sadeghi, Ph.D student at the age of 32 years at clinical biochemistry, Tarbiat Modares University, Tehran, Iran . He is the researcher of Research Center for Gastroenterology and Liver Diseases, Shahid Beheshti university of Medical sciences, Tehran, Iran, a premier at molecular research center on the molecular basis of gastrointestinal diseases. He has published more than 8 papers in reputed journals about molecular biology of gastric cancer and its precancerous lesions.