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Genetic Polymorphism of Matrix metalloproteinase-3 in Oral Squamous Cell Carcinoma and in Healthy controls - A Case Control Study

By

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ABSTRACT

Oral Cancer imposes a considerable problem worldwide being a highly deadly and disfiguring disease. Several studies have been reported on the role of proteolytic enzymes in this disease. Among them, the matrix metalloproteinases(MMPs) are highlighted, due to the fact that they are proteinases, responsible to degrade many extracellular matrix (ECM) components, making possible the invasion of neoplastic cells.

Recently studies have shown that Polymorphism in MMP-3 gene have been related to different neoplasias, including Oral Squamous Cell Carcinoma(OSCC). This study aims to evaluate the genetic polymorphism of MMP-3 gene in Oral squamous cell carcinoma patients and in healthy controls.

A sample size comprising 30 patients of clinically and histopathologically confirmed OSCC and 20 age and sex matched healthy individuals were assessed for single nucleotide polymorphism (SNP) adenosine insertion/deletion polymorphism (-1171 5A->6A) in the promoter region of MMP-3 gene.

5 ml venous blood were drawn from all these subjects from median cubital vein in EDTA coated vacutainers for genomic DNA extraction and PCR amplification. The polymorphism was detected by Polymerase chain reaction – Restriction fragment length polymorphism(PCR- RFLP) based restriction analysis.

Following the statistical analysis, it was noted that there was no significant difference in the polymorphic genotypes between OSCC and healthy controls. But there was an increased polymorphic allele frequency in OSCC compared to healthy individuals.

KEYWORDS: Oral Squamous cell carcinoma, Matrix metalloproteinases, Polymorphism, Genotypes.