

Molecular alterations of mitochondrial D - loop in oral leukoplakia, 2019

Abstract

Background: Over the years, numerous studies proposed a crucial role of mutations of nuclear DNA in the carcinogenesis process. Of late, many researchers suppose that alterations of mitochondrial DNA should not be excepted from this analysis. Mutational analysis of mitochondrial DNA displayed that mitochondrial D - loop is assessed as a hotspot for molecular alterations in various types of malignant tumors encompassing oral squamous cell carcinoma. Squamous cell carcinoma is believed to emerge through precancerous stages, which might be merely morphologic aspects of cumulative genetic variations. **Methods:** In keeping with this model of molecular tumor progression, this study aimed to investigate the qualitative and quantitative alterations that might occur in mitochondrial D - loop in oral leukoplakia whether dysplastic or not by semiquantitation of a product of the polymerase chain reaction and sequence analyses of mitochondrial D - loop gene.

Results: Statistically significant increases in the mean values of D - loop concentrations were observed across the dysplasia gradient of oral leukoplakia. Sequence analyses revealed the presence of point mutations in both dysplastic and nondysplastic oral leukoplakia but not in normal mucosa. **Conclusion:** The results of this study suggested that quantitative and qualitative alterations in mitochondrial D - loop could be a promising molecular marker for early detection and progression of the malignancy.