

عنوان مقاله:

Genotoxic Effects of Tobacco on Buccal Epithelium: Cell Nuclear Anomalies as Biomarker

محل انتشار:

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خلاصه مقاله:

Background: Tobacco use has toxic effects on different organs. This study was carried out to assess the effect of indigenous tobacco both in smoking (bidi) and smokeless (gutkha, zarda and khaini) forms on buccal cells at chromosomal level, through assessment of different nuclear anomalies as biomarker. Methods: This study was done on people living in Durgapur and its adjacent areas, West Bengal, India during January to July 2011. The samples were collected from 50 smokers (case group), 50 smokeless tobacco consumers or chewers (case group) and 50 non-tobacco consumers (control group). Micronucleus assay was used to assess buccal cell nuclear changes. Buccal smears collected from study subjects were prepared on a grease free slide. Prepared slides were observed under light microscope and 2 to 5 fields were observed randomly for counting the different anomalies. In each field, the frequency of each anomaly was assessed in 100 cells and reported with percentage. Results: Chewers had significantly the highest frequency of all nuclear anomalies compared to smokers and healthy controls (HCs). Smokers also had significantly more anomalies compared to HCs. Condensed chromatin (CC), karyolysis (KL) and binucleation (BN) in chewers and CC, pyknosis and BN in smokers were the most frequent anomalies. KL was significantly more frequent in chewers compared to smokers (59.8 ± 6.4 vs. $24.2 \pm 12.4\%$, $P < 0.001$), however, the frequency of other nuclear anomalies were not significantly different in these two study groups. Presence of each nuclear anomaly was significantly greater in older ages in all study groups. Conclusion: Tobacco can cause and increase the rate of nuclear anomalies in both smoking and smokeless forms compared to HCs. The genotoxic effects of tobacco on buccal cells are partly age-related. Cell nuclear anomalies in buccal tissue can be used as biomarker indicating the detrimental effects of tobacco.

کلمات کلیدی:

Micronucleus Tests, Mouth Mucosa, Smokeless tobacco, Tobacco Products, Toxicogenetics

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