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CYTOMORPHOLOGICAL ANALYSIS OF EXFOLIATED BUCCAL MUCOSA CELLS AT WORKERS OF HAIRDRESSING

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ABSTRACT
Aim of this study it was to investigate the genotoxic effect, on cytomorphology of buccal cells, under the impact of cosmetical preparations in buccal cells of hairdressing. We analysed 20 subjects and 20 subjects as control group.
We concluded that the cosmetical preparations has impact in diameters (smaller) of buccal cells, at hairdressing workers, compared with control group(higher diameters)

Key words: Cytomorphological , hairdressing, buccal, cells

INTRODUCTION

Oral exfoliative cytology is a simple, non-invasive, and painless method that involves microscopic analysis of cells collected from the surface of the oral mucosa (Diniz et al 2004). However, this method had been abandoned because of problems such as inadequate tissue samples, technical errors, and the incorrect interpretation of fi ndings. Today, with advanced imaging techniques, computerized systems, and the use of quantitative techniques to verify the reliability of cytomorphometric analysis, this method is gaining in popularity once again (Pektaş et al. 2006).

Many factors aff ect the cytomorphology of the cells collected from the oral mucosa. Some of these factors are systemic diseases, e.g., anemia and diabetes mellitus; radiotherapy; alcohol consumption (Ogden et al 1999); and smoking. Cigarettes contain many carcinogenic substances, mostly DNA-toxic carcinogens. It is well known that these carcinogenic substances cause genetic mutations and chromosomal abnormalities and micronuclei.

MATERIALS AND METHODS

Th is study was carried out in the Department of Biology , Faculty of Natyral Science, University of Prishtina.

The study group was composed of 20 individual, and the control group consisted of 20 healthy subject.

Cytomorphological parameters are analysed in 100 cells, for each individ, through scals in ocularmicrometer and calculated according the procedure of Odgen (1990)

It is necessary two type of micrometers: ocularmicrometers(Ocm) and objectmicrometers(Obm).

RESULTS AND DISCUSSION

Th is study was conducted on 40 individuals, which included 20 exposed individual and 20 individual as control group.

Smaller diameter (maximal diameter 50.0 μm ±2.8, and minimal diameter 37.9 μm ±2.67), but not to a significant scale, of the epithelial buccal cells of the salon employees compared with the control group (maximal diameter 51.4 μm ±3.2 ± and minimal diameter 39.2 μm ±2.58.

Larger diameter of a significant degree ($p < 0.001$; 0.006) of the epithelial cell nucleus in the epithelial buccal cells of analysis group(maximal diameter 10.11 μm ±0.45 and minimal diameter 7.81 μm ±0.48) compared with the control group(maximal diameteri 9.6

µm ±0.43 and minimal diameter 7.38 µm ±0.46µm).

Reduction of cell and cytoplasmic surface of the analysis group (maximal diameter 1482.0 μm^2 ±183.3; and minimal diameter 1419.3 μm^2 ±183.5), compared with the control group (maximal diameter 1583.7 μm^2 ±169.0; minimal diameter 1527.3 μm^2 ±167.1), but not to a significant scale.

Increased of nuclear surface to a significant scale ($p< 0.008$) of the analysis group (62.7 μm^2±8.1), compared with the control group (56.3 μm^2±6.2).

Increased nucleo-cytoplasmic ratio to a significant scale ($p <0.002$) of the analysis group analizës (4.50 ±0.92) compared with the control group (3.71 ±0.48)

Table 1. *Cytomorphologic parameters at control and exposed group*

Investigated parameters	Control group	Exposed group	t	P
Number of individual	20	20		
Cells diameter Maximal diameter / µm	51.4 ±3.2	50.0 ±2.8	-1.435	0.159
.....	.....	.....	.....	.....
Minimal diametei/ µm	39.2 ±2.58	37.9 ±2.67	-1.563	0.126
Nucleus diameter Maximal diameter / µm	**9.6** ±0.43	**10.11** ±0.45	3.520	**0.001**
.....	.....	.....	.....	.....
Minimal diametei/ µm	**7.38** ±0.46	**7.81** ±0.48	2.900	**0.006**
Area of e cells/ μm^2	1583.7 ±169.0	1482.0 ±183.3	-1.823	0.076
Area of nuclei h./ μm^2	**56.3** ±6.2	**62.7** ±8.1	2.788	**0.008**
Area of cytoplasm ./ μm^2	1527.3 ±167.1	1419.3 ±183.5	-1947	0.059
Nucleo:Cytoplasmatic ratio %	**3.71** ±0.48	**4.50** ±0.92	3.379	**0.002**

Exfoliative cytology is based on epithelial physiology. A normal epithelium is exposed to regular exfoliation, namely the loss of cell surface, and the thickness of the epithelium is constant (16). Under normal conditions, epithelial cells are strongly held in place. However, the presence of benign diseases or the occurrence of malignant epithelial formations causes the cells to lose their cohesive force, and results in exfoliation. Loss of cohesion between the cells enables the collection of the exfoliated cells for microscopic examination (17).

Cytomorphology is the most widely used method of oral exfoliative cytology, and assesses parameters such as cellular diameter (CD), nuclear diameter (ND), nuclear area (NA),

cytoplasmic area (CA), NA/CA ratio, nuclear shape, nuclear membrane continuity, optical density, and nuclear texture (17-19). Th ese parameters, especially NA and NA/CA ratio, have been shown to provide meaningful results in the diagnosis of oral lesions (15, 17).

CONCLUSION

According to this investigation, we can conclude: that color of hair at hairdresser has impact in diameter of nuclei, were the diameters at exposed group it is smaller compared with control group but not statistically significant.

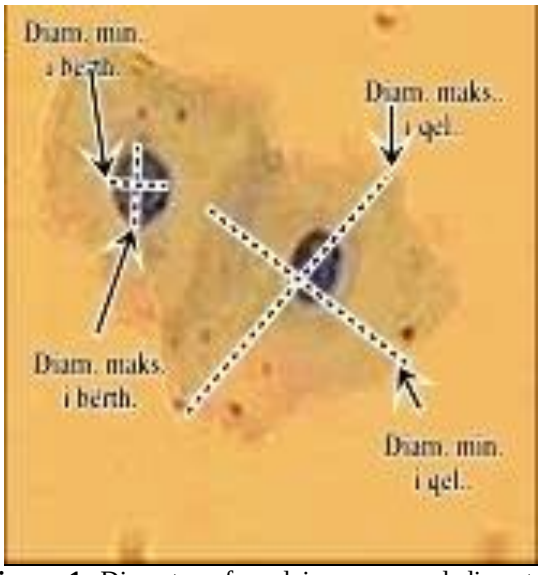

Figure 1. Diameter of nuclei – measured diameter: maximal and minimal

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