INTRODUCTION

The micronucleus test in buccal mucosa cells is one of the less invasive methods to measure DNA damage in humans. This test was proposed in 1983 and continues to gain in popularity as a biomarker of genetic damage. And its information can be used as an early warning of potential risk of developing long-term health problems.

Gas station workers or petrol pump workers are more liable to exposure and also absorb the fuel fumes and the products emitted by engines. Alcohol consumption and smoking appear to be the two most frequent exogenic risk factors for the development of oral cancer. Alcoholic beverages, acting locally, allow other carcinogenic substances to pass into target cells and also systemically lead to decreased cell metabolism, producing a relative immune deficiency.

MATERIAL AND METHODS

The study was conducted at four different petrol-filling stations located in Prishtina city, Kosovo. Among 50 workers in the exposed group as well as control groups 32 were smokers and 18 non-smokers. Participants were informed in detail about the planned study and written informed consents were obtained. All subjects were selected based on questionnaire which included questions about age, occupational exposure, smoking habit, use of drugs, alcohol, virus illnesses, recent vaccinations, and radiological exams.

The study population consisted of 50 workers and a control group of 50 healthy subjects. The youngest patient was 21 years old, and the oldest – 48 years old. Buccal cells were sampled with cytobrush from the inside of the cheeks and placed in physiological solution (NaCl 0.9%). The cells were washed thrice in the buffer solution by centrifugation. After centrifugation (10 min at 1000 rpm), the pellet was fixed in 3:1 methanol/acet acid for 10 minutes. Seven slides were prepared for each subject and 1000 cells are scoring (at 100× magnification), from each subject were examined. The cells were stained in 10% Giemsa solution.

RESULTS

The results were presented in Table 1 and Figure 1. The results were separated according to smoking and age.

The frequency of micronuclei in buccal cells of workers in petrol station was 12 MN/1000 buccal cells, while at control group is 3.52 MN/1000 buccal cells. It was statistically significantly higher (P=<0.001), compared with MN in the control group. After divided according to Alcohol, we found that the man (12.65 MN/1000 buccal cells) has higher number of micronucleus compared with smoking group in control group (7.44 MN/1000 buccal cells), at exfoliated cells of buccal mucosa. After divided according to somoking, we found that the man (13.22 MN/1000 buccal cells) has higher number of micronucleus compared with smoking group in control group (7.44 MN/1000 buccal cells), at exfoliated cells of buccal mucosa. While at oldest group at workers (10.89 MN/1000 buccal cells) has higher number of micronucleus compared with oldest in control group (7.27 MN/1000 buccal cells), at exfoliated cells of buccal mucosa...
DISCUSSION

We analysed a 50 workers and 50 individual as control group. Exfoliated cells of buccal mucosa are good indicators of chromosomal damage and other nuclear abnormalities such as binucleates, karyorrhexis and karyolysis12. Oral mucosa permeability in different regions of the mouth is an important aspect to consider when analyzing the local effects of carcinogenic effects. Non-keratinized tissues, such as the buccal mucosa are shown to be much more permeable than keratinized tissues, such as the palate and gingival17,8. Increase in nuclear abnormalities has been observed in buccal cells of women living in a dioxin contaminated area9. Analysis of exfoliated cells of buccal mucosa also provides evidence of other nuclear abnormalities such as binucleates, karyorrhexis and karyolysis13. These findings are in accordance with the results of the studies by Celik5, Selippa6, who used different stains as mentioned in and they determined a significant increase in the frequency of nuclear abnormalities in the buccal cells of petrol station workers than the control individuals

CONCLUSIONS

According to this investigation, we can conclude that: 1.) Petrol induced increased number of micronuclei in the buccal cells of workers (12MN), statistically significant compared with control group (3.52MN);

2) smokers at workers group had greater average number of MN (13.22 MN) compared with smokers at control group (7.44 MN);

3) Youngest group at workers group had greater average number of MN (9.76 MN) compared with control group (5.71 MN);

4.) Oldest at workers group had greater average number of MN (10.89MN) compared with Oldest at control group (7.27 MN);

5.) alcoholist workers group had greater average number of MN (12.65 MN) compared with alcohol at control group (6.54 MN);

REFERENCES


Source of Support: Nil, Conflict of Interest: None.