THE NOXIOUS EFFECTS FROM GALVANIZATION SECTIONS ON ORAL HEALTH

ALINA CRISTIAN¹, D. BARDAC²

1,2 "Lucian Blaga" University of Sibiu

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Abstract: This paper evaluates the oral health of a group of patients exposed to occupational hazards in the electroplating sections of a plant in Sibiu. The reporting of the results is made by comparison with the estimates obtained after analyzing the oral health of a control batch, similar to the studied batch, but whose subjects were not exposed to specific hazards, such as copper, nickel, zinc, hydrochloric acid.

Cuvinte cheie: noxe, cavitate orala, parodontopatii **Rezumat:** Lucrarea evaluează starea de sănătate orală a unui lot de pacienți expuși la noxe profesionale din cadrul secțiilor de galvanizare ale unei fabrici din județul Sibiu. Raportarea rezultatelor se face prin comparație cu estimările obținute după analiza stării de sănătate orală a lotului martor, lot similar cu cel de cercetat, dar al cărui subiecți nu au fost expuși la noxele specifice de tipul: cupru, nichel, zinc, acid clorhidric.

INTRODUCTION

The World Health Organization mentions over 100,000 kinds of toxic substances to which humans may be exposed during various processes of the industrialization.

In the clinical context of occupational exposure to various toxins, at the level of the oral cavity the following may occur: gum lizereum, teeth discoloration, dental gingival stomatitis, scabs or placards, loss of dental units and hence the emergence of different classes of edentulous areas arthralgia in the temporomandibular joint mandible, chronic marginal or deep periodontitis, dry mouth, increased salivation etc.(1,2)

Each of these symptoms occur depending on the hazards the human organism is exposed to, depending on the duration of the exposure and depending on other general conditions present before exposure or generated by these emissions.(3,4)

WORKING HYPOTHESIS

Our current research went on the assumption of the need to perform a study on the effects of chemical pollutants on the human body, such as nickel, zinc, copper, but especially on oral and dental-periodontal health, the effects on this body segment, less studied until now.

PURPOSE

This paper evaluates the oral health of a group of patients exposed to occupational hazards in the electroplating sections of a plant in Sibiu.

METHODS

We examined a group of 184 patients, people working within electroplating departments of a company in the city of Sibiu.

The subjects were divided into two similar groups: group A, the investigated group, with 92 subjects aged between 31-50 years old, mostly men with seniority in the toxic environment between 10 and 20 years and group B, the control group with 92 subjects of the same age group, mostly men, with the same seniority, but representing the administrative and technical support staff, who were not exposed to occupational hazards. Within the institution and the galvanisation department, we identified the following hazards: hydrochloric acid and sodium cyanide, nickel, zinc and copper, used in the technological process of various metal parts coating by electrolytic methods to improve their functional and anticorrosion properties.

We examined the patients in both groups in terms of dento-periodontal status; we conducted hygiene and radiological examination on panoramic radiographs. The statistical data obtained were also centralized by applying a questionnaire on the patients' data referring to seniority and their general and dental condition.

RESULTS AND DISCUSSIONS

After examining the groups of patients that were similar and homogeneous in terms of seniority and age, we summarized the results as follows:

The frequency of chronic marginal periodontitis, both superficial and deep, is higher in the investigated group, being present in 87 patients (94.5%) compared with 43 patients (46.73%) in the control group, as shown in figure no. 1:





Partial edentulous areas are found in the majority of the studied patients, respectively in 53 patients (57.6%) as

¹Corresponding author: Alina Cristian, Str. Iuliu Maniu, Nr. 2, Sibiu, România, E-mail: alina_cristian24@yahoo.com, Tel: +40742 258002 Article received on 28.08.2012 and accepted for publication on 17.10.2012 ACTA MEDICA TRANSILVANICA December 2012;2(4):294-295

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against the patients in the control group, 27 patients (29.3%), as shown in figure no. 2:

Figure no. 2. Frequency of partial edentulous areas



From figure no. 3, it shows that corrosion lesions of the dental enamel are found in high percentage in the patients exposed to pollutants, namely in 89 patients (96.7%) compared with the control group, 15 patients (16 3%).





In terms of oral hygiene or dental brushing frequency or the frequency of the visits to the dentist, the results are not statistically significant, both groups showing similar deficiencies in this respect.

CONCLUSIONS

- 1. Occupational hazards influence negatively the oral health of the human body.
- Under the impact of the harmful effect of the working environment toxicity, oral homeostasis is altered and periodontal dental injuries occur and become serious.
 The largest structural changes are observed in the marginal
- 3. The largest structural changes are observed in the marginal periodontium of supporting the orodental mutations, through the occurrence of chronic marginal and deep periodontitis.
- 4. Poor oral hygiene is an aggravating factor of the adverse effects of hazards present in the electroplating departments.

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