OCCUPATIONAL HEALTH PROBLEMS AMONG DENTISTS IN MOLDAVIAN REGION OF ROMANIA

Lucia Bârlean, I. Dănilă, Iulia Săveanu, Carina Balcoş
University of Medicine and Pharmacy „Grigore T. Popa”-Iaşi,
Faculty of Dental Medicine
Department of Preventive Dentistry

OCCUPATIONAL HEALTH PROBLEMS AMONG DENTISTS IN MOLDAVIAN REGION OF ROMANIA (Abstract): Aim: The aim of this study was to evaluate the occupational health problems among dentists in the Moldavian Region of Romania. Material and methods: Questionnaire-based study was conducted on 152 dentists aged between 25-65 years practicing in 6 counties the Moldavian Region of Romania. The questionnaire included questions related to the dentists’ occupational health pathology. Data were statistically analyzed using SPSS 14.0 and chi-square test (p<0.05). Results: The majority of the dentists (91%) consider that they are exposed to an occupational risk and 41.8% of them experienced a percutaneous injury caused by sharp instruments in the last year. 74.6% of the dentists are protected by vaccination against hepatitis B and 76.1% against influenza. 49.3% of the dentists reported eye injuries caused by solid particles (13.2%), blood splashes (14.7%) and/or chemicals (20.5%). Allergies associated to professional activity were reported by 76.1% of the dentists. Conclusions: The dental staff must be informed in order to recognize, control and prevent the potential occupational hazards in the workplace. Keywords: OCCUPATIONAL HEALTH, DENTISTS, PREVENTION

Occupational health of the medical staff in the dental office is of particular concern in order to reduce exposures to risk factors as percutaneous injuries, exposures to airborne pathogens, contact with materials and chemicals, ergonomic hazards, noise, vibration, radiations, eye injuries, allergens, stress (1). Most of the occupational exposures can be prevented by applying the concept of Standard Precautions during the clinical activity in the dental office (2).

MATERIAL AND METHODS
In order to assess dentists’ occupational health problems in Moldavian Region of Romania a questionnaire-based study was conducted involving 268 dentists, 72.7% women and 27.3% men, aged between 25 and 65 years, working at private dental offices in 6 counties of Moldova: Iasi, Botosani, Neamt, Suceava, Bacau and Vaslui.

The questionnaire included 21 questions on the occupational health problems reported by the dentists related to exposures by sharp instruments, musculoskeletal disorders, and ergonomic position during clinical activity, vision and hearing problems, exposure to vibration, allergies, exposure to stressful situations.

Data were processed using SPSS 14.0 system and compared using Chi-square test
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(p<0.05). The approval of the Ethics Committee of the "Gr.T.Popa" University of Medicine and Pharmacy Iasi was obtained.

**RESULTS**

91% of the dentists consider that they are exposed to an occupational risk during the clinical activity. From those 22.2% mentioned the risk of contamination with pathogenic agents.

During the professional activity 41.8% of the subjects experienced a percutaneous injury caused by sharp instruments in the last year (fig.1).

![Fig. 1. Prevalence of dentists' percutaneous exposures during the last year](image)

From the exposed dentists 10.4% reported the incident to a specialist in occupational health in order to follow an appropriate post-exposure protocol. 74.6% of the dentists are protected by vaccination against hepatitis B and 76.1% against influenza.

The number of hours spent daily by the dentists at work ranges between 1-4 hours (34.9%), 4-7 hours (51.2%) and over 7 hours (34.9%).

49.3% of the dentists reported eye injuries caused by solid particles (13.2%), blood splashes (14.7%) and/or chemicals (20.5%) (fig.2). Protection goggles are used by 72.4% of the respondents.

![Fig. 2. Factors related to dentists' ocular health](image)

The musculoskeletal disorders were reported by 70.1% of the subjects. The most frequent symptom was the pain located in the cervical spine (47.3%), lumbar spine (36.7%), dominant arm (43.1%) and hip (10.4%) (fig.3). Other mentioned musculoskeletal symptoms were: muscular spasm (28.3%), paresthesia (15.8%) and functional limitation (27.1%).

![Fig. 3. Dentists’ occupational musculoskeletal pain localization.](image)

Allergies associated to professional activity were reported by 76.1% of the dentists. The most incriminated allergens were the latex protective gloves (13.4%) and the impression materials (8.8%) (fig. 4).
Fig.4. Allergens associated to dentists’ occupational pathology

The mental illnesses associated to the professional activity reported by the subjects were: depression (5.9%), alimentation problems (5.8%) and anxiety (1.4%).

The self-reported professional stress is rated by most dentists in the 5 (22.4%) and 7 (20.9%) level on a scale between 1 and 10.

29.9% of the dentists are smokers but this habit is not considered as a work-related one.

DISCUSSION

The modern dentistry has advanced with giant steps but it is still associated with important occupational risks for the dental team. Extensive literature reviews reveal the hazards represented by percutaneous exposures, eye injuries, noise, vibration, ergonomic factors, contact with allergens and toxic chemicals, stress.

Dental personnel can be exposed to pathogenic microorganisms including staphylococci, streptococci, cytomegalovirus, HBV, HCV, herpes simplex virus, HIV, *Mycobacterium tuberculosis* and other viruses and bacteria from the oral cavity and respiratory tract. These pathogens can be transmitted through direct contact with blood or other contaminated fluids, indirect contact with contaminated instruments, equipment or environmental surfaces, contact of nasal, conjunctive or oral mucosa with droplets and inhalation of airborne microorganisms (3).

In our study most dentists consider that they are exposed to occupational risk factors from which the most important is represented by exposure to blood through incidents caused by needle stick and sharps instruments. About half of all dentists reported such an exposure during the last year. The prevalence of sharps injuries reported in literature reviews is about 50% in United Kingdom and Thailand, 28% in Queensland Australia, 138% in Durban South Africa (4, 5, 6, 7).

From the exposed dentists only ten percent reported the incident to a specialist in occupational health demonstrating a poor knowledge regarding the post-exposure protocol which must be followed in order to decrease the risk of diseases transmission. Prevention of percutaneous exposures must be achieved by dental team education, immunization, and use of protective equipment and safety devices. Even although the dentists are concerned about the possible transmission of blood borne pathogens like hepatitis B virus, hepatitis C virus or HIV only 74.6% of them are vaccinated against hepatitis B.

The eye problems associated to the dentists’ professional activity refer to injuries caused by fragments of dental filling materials, dental tissues, calculus or metal, blood splashes or chemical drops. The prevalence of the ocular problems reported in the literature range between 10% and 73% (8, 9). The eye injuries have a high risk of infection and can affect the professional performance of the dentist. Even though dentists’ eye protection is highly recommended only 72.4% of the respondents in our study use goggles.
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or face shields.

Another important risk factor is represented by the contact with allergens like latex gloves, dental filling materials, impression materials, chemicals, anesthetic gasses, disinfectants. In our study three quarters of the respondents reported allergic reactions, especially in the form of dermatitis caused by latex gloves.

Musculoskeletal disorders represent one of the most serious occupational pathology hazards. Three quarters of the dentists in our study declare to suffer symptoms, especially pain, located in the spine and dominant arm. Our results on lumbar pain are comparable with those, reported by other authors: 50.0% Al Wazzan, 55.2% Ratzon, 54.3% Legat, 52.2% Barlean, 54.2% Gibels (10, 11, 12, 13, 14).

Dentistry is considered one of the more stressful medical specialties due to specific factors like physical strain, patients’ pain and anxiety, treatment compliance, competition, isolation, monotony, lack of appreciation, economic pressures or seeking ideal results. Our results illustrate a low prevalence of the mental disorders compared with that reported by other researchers. In Lituania 95.7% of the dentists suffered psychological problems associated to professional stress, sleep disorders -78.8%, tension- 80.5% and anxiety- 96.4% (15). In Great Britain 60% per cent of dentists reported being nervy, tense or depressed, 58.3% reported headache, 60% reported difficulty in sleeping and 48.2% reported feeling tired for no apparent reason related to work stress (16). In order to decrease those harmful effects dentists must identify the stressors, apply appropriate stress management strategies and to adopt healthy habits and attitudes.

CONCLUSIONS

Exposure to numerous biological, chemical, environmental, physical, and psychological risk factors is highly associated with the clinical activity in the dental office. The dental staff must be informed and educated in order to recognize, control and prevent the potential occupational hazards in the workplace.

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REFERENCES

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**NEWS**

**CELL THERAPY IN BISPHOSPHONATE-RELATED OSTEONECROSIS OF THE JAW**

Bisphosphonate-related osteonecrosis of the jaw is a clinical condition found in patients who have received intravenous or oral bisphosphonate therapy for various diseases related to bone. This report describes an innovative approach for the treatment of this condition using autologous bone marrow stem cells, platelet-rich plasma, beta tricalcium phosphate, and demineralized bone matrix. The patient was a 71-year-old woman with history of multiple myeloma treated with intravenous zoledronic acid during 4 years. After a tooth extraction, the patient presented with a painful bisphosphonate-related osteonecrosis lesion with no healing wound and cortical bone exposure. The patient was surgically managed with a standardized protocol of autologous stem cell therapy combining bone marrow harvest, cell concentration procedures, and intraoral surgery. CT scan performed 6 months later showed improvement of bone and concentric ossification. The authors concluded that cellular therapy might be considered a new strategy to heal bisphosphonate-related osteonecrosis of the jaw lesions. [Gonzálvez-Garcia M, Rodríguez-Lozano FJ, Villanueva V, Segarra-Fenoll D, Rodríguez-González MA, Óñate-Sánchez R, Blanquer M, Moraleda JM. Cell therapy in bisphosphonate-related osteonecrosis of the jaw. *J Craniofac Surg* 2013; 24(3): 226-228].

Gianina Iovan