

Review

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About: The dissertation of Assoc. Prof. Dr. Iliyana Lyubomirova Stoeva, PhD,
for obtaining the Scientific Degree "Doctor of Science"
on the topic: **“Work-related skin and respiratory symptoms among dental
staff”**

I. Procedure presentation

This review is prepared on the basis of Order № P - 160– 09.02.2021 of the **Rector of MU - Plovdiv Professor Marianna Murdjeva, MD, PhD, MHM** and on the basis of Art. 30, para. 3 of PPZRASRB, preliminary discussion of the department council of the department of “Diagnostic imaging, dental allergology and physiotherapy” (*Minutes №10 from 09.11.2020*) and *Minutes from the Faculty Council of FDM-MU-Plovdiv №8 from 21.12.2020*)

II. Biographical data

Assoc. Prof. Dr. Iliyana Stoeva graduated from the “Acad. Lyudmil Stoyanov” Language School in Blagoevgrad, with French and English in 1996. She graduated from the Medical University- Sofia, Faculty of Dental Medicine as a dentist in 2002. From 2004 to 2008 she was a full-time doctoral student in the Department of Imaging and Oral Diagnostics and a resident in the Department of Prosthetic Dentistry. She acquired a specialty in Prosthetic Dentistry in 2010, and a specialty in Dental Clinical Allergology five years later. She acquired the scientific degree "Doctor" in 2009, with the topic of the dissertation: "Intraoral contact hypersensitivity to prosthetic dental materials" From 2010 to 2020 she has professionally grown from full-time assistant in the Department of Imaging and Oral Diagnostics in FDM at MU-Sofia, to full-time assistant in the Department of Diagnostic Imaging, Dental allergology and Physiotherapy in FDM, MU-Plovdiv, to chief assistant in the same department, associate professor and head of Department and Vice Dean of Science and Research Activities FDM, MU-Plovdiv.

III. Thesis

The dissertation consists of 270 pages and is illustrated with: 57 tables, 45 figures. The bibliography includes 546 literature sources, of which 9 in Cyrillic script and 537 in Latin script.

1. Topicality of the issue

Amidst occupational diseases caused by chemicals in the work environment, the most common among dental staff are skin diseases, in particular - occupational contact dermatitis, which are considered to be less frequently reported than their actual prevalence. Respiratory hypersensitivity associated with the work environment has also been characterized by an alarming increase in symptoms in recent decades. The progression of the manifestations can affect the professional activity and in some cases lead to a change of profession. A serious problem in the diagnostic process is that a number of dermatologists and allergists are not aware of the nature of the work or the composition of the materials, which are constantly updated, and do not always manage to find the cause. The importance of the factors of the work environment, the peculiarities of the individual and the professional habits for the occurrence of skin symptoms or respiratory hypersensitivity **determines the topicality and necessity of such a dissertation.**

2. Bibliographic reference and review

The literature review begins with a review of most of the materials used in dentistry that cause sensitization in medical staff. Materials leading to contact clinical symptoms and volatile compounds leading to respiratory symptoms are discussed in detail. The essence of the epidemiological presentation of the work-related skin and respiratory symptoms is traced. The characteristics of the different materials used in the clinic and in the dental laboratory are taken into account. The main symptoms of various diseases such as allergic and irritant contact dermatitis, urticaria and respiratory hypersensitivity are described. The pathogenetic mechanisms of the respective diseases are also considered. The diagnostic methods and treatment approaches in cases of sensitization with skin or respiratory manifestations are analytically clarified. Attention is paid to preventive measures and activities to prevent hypersensitivity in medical staff.

The problems arising from the lack of a unified strategy to reduce and prevent hypersensitivity of medical staff are identified. The need for additional research on the topic is analytically substantiated and the aim and tasks of the dissertation are presented.

3. Aim and tasks

The aim of the dissertation of Assoc. Prof. Dr. Iliyana Stoeva, Ph.D. is to study the prevalence, characteristics and risk factors for the occurrence of work-related skin and respiratory symptoms among dental staff. To achieve the set aim 5 tasks are completed with 4 subtasks, formed precisely, including own methods of research, formulations and statistical processing.

4. Own research and development. Results and discussion.

Tasks 1 and 2:

Study of the prevalence, characteristics and risk factors for the occurrence of skin reactions related to the work environment among dental staff on the basis of self-assessment through a large-scale survey. In fulfillment of the first and second tasks, a total of 5993 representatives of the medical staff, directly involved in clinical and laboratory work in the field of dental medicine, were interviewed. Of the 9,713 dentists registered with the BDA at the time of the study, 4,675 were surveyed (response rate 48.1%). 539 members of the dental technician community, took part in the study. The number of dental nurses who filled in the questionnaires is 312, 467 dental students from the second to the sixth year were also interviewed. The materials are statistically processed, giving grounds for drawing conclusions.

Task 3:

For the study, 89 safety data sheets of materials and agents used in the dental environment were analyzed. The information is found directly on the manufacturers' websites or in the leaflets included in the packaging of the dental materials. Insufficient information about the composition of the composite materials, presented in the safety data sheets, led to personal correspondence

with seven leading companies. – Hereaeus Kulzer, GC, Ivoclar Vivadent, Kerr, SpofaDental, Voco and 3M ESPE, the products of which are widely available on the Bulgarian dental market. The three dental series of Chemotechnique Diagnostics® (Malmö, Sweden) – Dental Screening, Dental Patients and Dental Staff were used for the generalization of the main standardized allergens included in the composition of the dental materials.

Task 4:

The subject of the study were 329 representatives of dental staff aged 22 to 76 years (mean age 45.4 ± 13.5 years), of which 77 (23.4%) men and 252 (76.6%) women. Standardized allergens from Chemotechnique Diagnostics (Vellinge, Sweden) were used. The study included a Dental Screening Series with 30 allergens and 10 additional allergens that were identified as present in dental materials, protective gloves and disinfectants. All allergens of the company are produced according to the requirements of the International Contact, Dermatitis Research Group (ICDRG) and European Environmental and Contact Dermatitis Research Group (EECDRG).

Task 5:

Microsoft's Access software product was used, being a functional system for managing relational databases, the product allows: -definition and storage of data, data processing and data control.

5. Conclusions

One third of the dental staff suffers from work-related skin symptoms, which can occur as soon as the period of student training. The most significant risk factors for the occurrence of work-related skin symptoms for dental staff working in clinical conditions are frequent hand washing, female gender, longer work experience, prolonged contact with protective gloves (more than 4 hours per day) and anamnestic data for atopic dermatitis and

contact allergy. The most significant risk factors for the occurrence of occupational skin symptoms in dental technicians are frequent hand washing, work with removable dentures and anamnestic data for atopic dermatitis and contact allergy. A quarter of the dental staff suffers from work-related respiratory symptoms, which can occur as soon as the period of student training. The most significant risk factors for the occurrence of work-related respiratory symptoms for dental staff working in clinical conditions are work experience of more than 10 years, anamnestic data for atopic disease, exposure to substances from the working environment for more than 6 hours a day and female gender. The most significant risk factors for the occurrence of work-related respiratory symptoms in dental technicians is the lack of ventilation systems, anamnestic data for atopic disease, exposure to harmful substances from the working environment for more than 8 hours a day, while the risk of their occurrence is greatest in the first 5 years of work. Aggravation of work-related skin and respiratory adverse reactions is most commonly reported by dental nurses and dental technicians. The standard series for dental staff is insufficient for complex allergological diagnosis in case of suspicion of occupational allergy. Contact dermatitis was registered in 42.7% of the symptomatic dental staff, and in half of them contact sensitization with clinical significance to haptens from the working environment was found.

6. Thesis contributions

The contributions of the thesis are significant and have significant practical and theoretical value.

An assessment of the prevalence of work-related skin and respiratory symptoms among dental staff in the country was made. The risk factors for the occurrence of work-related skin and respiratory symptoms among dental staff are produced. Contact allergens from dental materials, safety equipment and disinfectants have been identified. An assessment of the role of allergic mechanisms in the occurrence of work-related skin reactions in dental staff was made. An electronic register has been created for the dental medical staff with work-related skin and respiratory

symptoms.

7. Author's summary

The summary fully meets the requirements, contains 60 pages and presents in a synthesized form the main structural elements of the dissertation. It is illustrated appropriately and meets all requirements. The diverse statistical processing of the survey data makes a particularly good impression.

The scientific publications presented by Assoc. Prof. Dr. Iliyana Stoeva, Ph.D. on the topic of the dissertation are 15 in number.

8. Conclusion.

The dissertation: "Work-related and respiratory symptoms among dental staff" for the award of the degree "Doctor of Science" is in-depth, analytical, focused and effective. It is a summary of many years of clinical and theoretical experience. The dissertation is of scientific and applied nature, offers a comprehensive concept for diagnosis and prevention of professionals in the field of dental medicine, exposed to harmful factors with high sensitizing potential. I consider the published 15 scientific publications on the topic of the dissertation to be an undoubted and reliable proof that Assoc. Prof. Dr. Iliyana Stoeva, PhD is well acquainted with the problem and that the dissertation is a logical conclusion of many years of clinical experience.

I express my positive assessment of the dissertation: "Work-related skin and respiratory symptoms among dental staff".

I will earnestly and unequivocally vote "YES" for the award of the scientific degree "Doctor of Science" to Assoc. Prof. Dr. Iliyana Lyubomirova Stoeva, PhD

15.02.2021
Varna

Reviewer: 
/ Prof. Dr. Metodi Abadzhiev, DMD, PhD, DSc /