ONLINE EVALUATION OF PERIODONTAL DISEASE PREVALENCE IN PATIENTS WITH PULMONARY PATHOLOGY

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Abstract

Introduction. Periodontal affections can play a determinant role in the evolution of different systemic diseases. Periodontal pathogenic bacteria stimulate the release of pro-inflammatory cytokines or acute phase proteins. Materials and method. The current research involved developing a questionnaire addressed to a number of 42 dentists from 12 different countries, who were asked to fill it in using an online platform. The questionnaire included five significant questions. Results and discussion. The main observation made was that the ratio of patients with pulmonary pathology, more frequently occurring as irreversible forms of periodontal disease (chronic and aggressive periodontitis), was higher, while fewer patients were diagnosed with different forms of gingivitis.

Conclusions. Improving, enriching, optimizing and individualizing the means of oral hygiene – all representing sound arguments in favor of reducing the inflammation of periodontal tissues – appear as simple, cheap and efficient methods capable of decreasing the risk of pulmonary affections.

Keywords: periodontal disease, pulmonary pathology, online questionnaire

1. INTRODUCTION

A special scientific interest has been manifested, in the last decade, for the role played by periodontal affections in different systemic diseases. A focal infection can disseminate microorganisms or toxic products to other tissues. For example, periodontal pathogenic bacteria can be aspirated at pulmonary level, causing aspiration pneumonia. The dental surfaces can represent bacterial reservoirs for colonization of pulmonary pathogens, following nosocomial pneumonia [1]. Recent researches published in literature claim that localized infectious diseases, such as the periodontal disease, influence an important number of systemic diseases - aterosclerosis, diabetes, rheumatoide polyarthritis, transient ischemic stroke, myocardial infarction. Also, most concludent results put into evidence the fact that the intensity of chronic periodontitis induced by infection or by pro-inflammatory phenomena can vary in the context of systemic pathology [2].

A recent hypothesis states that the bacteria involved in periodontal diseases stimulate the release of pro-inflammatory cytokines (IL-1, IL-2, IL-6, IL-8) or acute phase proteins (CRP) over distant areas (liver, pancreas, skeleton, blood vessels), being capable of initiating or intensifying a pathologic process, such as aterosclerosis or diabetes.

The distant affection of different organs by the periodontitis induced by lipopolysaccharides is a current subject, animal research underlining the efficiency of melatoni as a preferred therapeutical solution [3].

Also, bacteria can migrate from the oral sites to other mucosal surfaces (lung, intestine), causing inflammatory and infectious processes.

Pneumonia, defined as an inflammation produced at lung level, is determined by fungal, viral or bacterial infections. Bacterial pneumonia is one of the most frequent and most easy-to-cure
form of disease, being initiated after colonization of the oral cavity and pharyngeal mucosa by potential respiratory pathogens.

Aim. The aim of the study was to realize an online evaluation on the prevalence of periodontal affections associated with pulmonary pathology. The evaluation, performed at international level, included a heterogeneous sample population represented by patients selected from private or university clinics where the dentists who filled in the questionnaire worked.

2. MATERIALS AND METHOD

The current research involved sending of questionnaires to a number of 42 young dentists - with private practice and enrolled in postgraduate programs - from 12 countries (Romania, Czech Republic, Serbia, Slovenia, Egypt, Slovakia, Russian Federation, Armenia, India, Malaysia, Hungary, USA, Israel). The online questionnaire was realised with the support of the specialized platform www.onlinesurvey.com. The questionnaire was promoted using the electronic closed group of Young Dentists Worldwide Association, which gathers young doctors from numerous countries. The 111 members of the group received a single e-mail, inviting them to fill in the online questionnaire. No further e-mails were sent to remind the members to fill in the questionnaire until the deadline.

Out of the 111 requests, 42 valid questionnaires were registered, which were introduced in our research.

The structure of the questionnaire included 5 important questions on the prevalence of periodontal disease among patients with diagnosed pulmonary diseases. (Fig. 1)

The questions included were the following:

1) What percent of the patients you have consulted in the last year were diagnosed with systemic diseases?

2) What percent of the patients with systemic disease were diagnosed with pulmonary pathology, such as asthma, pneumonia, tuberculosis or BPOC?

3) What percent of the patients with pulmonary disease you diagnosed with gingivitis?

4) What percent of the patients with pulmonary disease you diagnosed with chronic or aggressive periodontitis?

5) What percent of the patients with pulmonary pathology and periodontal disease...
followed a specialized treatment and came back for reevaluation?

3. RESULTS AND DISCUSSION

Analysis of the results obtained from the answers to the first two questions showed that a significant percent of respondents (10%) use to treat daily a large number of patients with systemic diseases (>20%). (Fig. 2) Another observation was that most of the participants to this study (69%) estimated that pulmonary affections represent about 1-5% of the total number of patients with systemic diseases. (Fig. 3)

It was observed that a higher percentage of patients with pulmonary pathology presented more frequently irreversible forms of periodontal disease (chronic and aggressive periodontitis) (Fig. 5), while a lower percentage suffered from different forms of gingivitis (Fig. 4).

Unfortunately, only 67% of the patients with periodontal disease and associated pulmonary pathology came back for specialized treatment and periodical follow-up.

The results of the present study agree with previous researches and encourage a continuous maintenance of periodontal health, which can significantly reduce the severity of pulmonary infections among the population at risk [4].
4. CONCLUSIONS

The current research has a pilot role, trying to make the young dentists aware of the importance of the periodontal pathology for one’s general health status.

Obviously, the statistics here performed is only orientative, the main objective being of experimenting the online survey method and of encouraging the exchange of information and clinical experience at international level.

This study was designed to remind young clinicians with limited experience that dental medicine is not referring strictly to diagnosis and to a correct treatment of the affections of the oral cavity, it also aims at associating the specialized treatments with a holistic approach of the case. Improving, enriching, optimizing and individualizing the means of oral hygiene, all representing solid arguments in favor of reducing the inflammation of periodontal tissues, appear as simple, cheap and efficient methods to decrease the risk of pulmonary affections.

References