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Original Article

Knowledge of Senior Dental Students on Odontogenic Infections

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ABSTRACT

Odontogenic infections are the most common infections that require early diagnosis and proper treatment. Given the sensitivity of the issue, the dental community needs to have correct information about the current status. Therefore, this study aimed to assess the knowledge of students in Tabriz University of Medical Sciences about the treatment of odontogenic infections in 2017. In this descriptive–analytical study, all the senior students of Tabriz Faculty of Dentistry were evaluated. Data were collected using a questionnaire consisting of 20 questions related to students' awareness about the treatment of odontogenic infection. Data were analyzed with descriptive statistics and chi-squared test. The results indicated that the mean knowledge score of the students was 8.64±2.6. Knowledge of 77.4 % of students was low, 20.8 % had moderate knowledge and 1.8 % had a high level of knowledge. There were no significant differences in knowledge between male and female students. Knowledge of senior dental students in Tabriz University of Medical Sciences was poor, with no difference between male and female students.

INTRODUCTION

Intraoral infections have a dental origin in the majority of cases and are referred to as odontogenic infections. These infections include dental caries, periapical abscesses, gingivitis and periodontitis(1). Odontogenic infections are the most frequent reasons that prompt patients to seek medical care. It has been reported that 12% of prescriptions for the treatment of odontogenic infections consist of antimicrobial agents(1-3). Treatment of odontogenic infections is one of the most important issues in dentistry; however, due to inadequate knowledge of dentists about the correct treatment of such infections, casual use of antibiotics has led to the emergence of resistant microorganisms(2).

The chief aim of treatment is to limit and inhibit proliferation and growth of the bacteria producing infection. Debridement and drainage of dental abscesses is the first step and in abscesses with a pulpal origin, this is carried out through the root canal(s). In some cases, if the abscess is acute, the infected tooth might be extracted to establish a route for drainage. In abscesses with widespread swelling, surgical techniques are used to establish a route for drainage, which consist of incisions in areas with the highest degree of fluctuation(4).

The results of a review study conducted in 2010 showed that awareness and education of dentists in relation to odontogenic infections were inadequate and due to the casual use of antibiotics by dentists, it is necessary to promote their knowledge in order to prevent an increase in resistance to antibiotics and other side effects of medications(5).

Palmer et al (2000) carried out a study to evaluate how general dental practitioners in England prescribed antibiotics and reported that the majority of dentists prescribed unnecessary antibiotics with variable doses and intervals of use for long periods(6).

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Since odontogenic infections are one of the most important infections of the oral cavity and can induce some common oral cavity cysts, it is important for dentists to be aware of important clinical properties, treatment modalities and differential diagnosis of these infections from each other and from other pathological lesions of the oral cavity. In addition, since no study to date has been undertaken to evaluate the knowledge of dental students in the north-west of Iran in this respect, the present study was undertaken to evaluate the knowledge of senior dental students in Tabriz University of Medical Sciences about the treatment of odontogenic infections in 2017.

MATERIALS AND METHODS

The subjects in the present descriptive/analytical study were 60 senior dental students in Faculty of Dentistry, Tabriz University of Medical Sciences. Data were collected with use of a researcher-made questionnaire, which consisted of demographic data (age, gender and the student mean grades) and 20 multiple-choice questions on students' knowledge about the treatment of odontogenic infections. Each correct response was given a positive score and wrong answers were not given any scores. Each student's total score was the sum of his/her correct responses, with a score range of 0–20. The students' scores were characterized as follows:

A score of 0–10: poor knowledge

A score of 11–15: moderate knowledge

A score of 16–20: good knowledge

In order to evaluate the validity of the questionnaire it was handed in to 4 professors in the Faculty of Dentistry and the necessary modifications were made. In order to determine the reliability of the questions, it was distributed among 20 dental students in a pilot study and then its reliability was calculated using Cronbach's alpha coefficient. After the questionnaire was approved, it was distributed among the subjects. Cronbach's alpha was calculated at 0.79. Data were analyzed with the use of descriptive statistics (frequencies, percentages, means and standard deviations) with chi-squared test, using SPSS 21. Statistical significance was set at $P<0.05$.

RESULTS

Of 60 questionnaires handed in to students, 53 were correctly completed and returned. A total of 49.1% (26 subjects) of the students were male and 50.9% (27 subjects) were female. The results, based on responses to 20 questions in the questionnaire, showed that the students' mean knowledge score was 8.64±2.6, with a range of 3–16. The highest achievable score was 20.

In this study, 77.4% of students had poor knowledge, 20.8% had moderate and 1.8% had good knowledge. Scores 0–10 were considered poor and scores 11–15 and 16–20 were considered moderate and good knowledge, respectively.

Evaluation of students' knowledge in terms of their gender showed that among female students, 77.8% had poor knowledge and 22.2% had moderate knowledge. Among male students, 77% had poor knowledge, 19.2% had moderate knowledge and 3.8% had good knowledge. Chi-squared test did not reveal any significant difference in knowledge between male and female students, i.e. the knowledge level of male and female students was the same ($P=0.57$).

DISCUSSION

Odontogenic infections which originate from the pulp or periapical tissues of teeth with deep caries are the most common infections of the head and neck region and if they are not treated correctly and in due course, they can threaten the patient's life by extending into the fascial spaces(7). However, due to the insufficient knowledge of dentists about such infections, they prescribe antibiotics casually, resulting in the emergence of resistant strains of microorganisms(2). Therefore, the present study was undertaken to evaluate senior dental students in Tabriz University of Medical Sciences about the treatment of odontogenic infections in 2017.

The results of the present study showed that the students' knowledge was poor, with no significant difference between male and female students. Al-Sebaei et al (2016) showed that the knowledge of dentists in Saudi Arabia about the treatment of odontogenic infections was at a moderate level and newly graduated dentists had higher knowledge compared to other dentists. In that study, 77% of dentists prescribed antibiotics in cases in which antibiotics were not necessary(8). Dar-Odeh et al (2010) showed in a review study that knowledge and education of dentists in relation to odontogenic infections were inadequate and they recommended that dentists' knowledge should be promoted in this respect due to the casual prescription of antibiotics by dentists in order to prevent resistance to antibiotics and other side effects of antibiotics(5). Palmer et al (2000) carried out a study in Britain to evaluate the antibiotic prescription protocol used by general dental practitioners and reported that the majority of dentists prescribed unnecessary antibiotics in association with variable doses and intervals of use for long periods of time(6).

Although a limited number of studies have evaluated the knowledge of dental students and general dental practitioners about odontogenic infections, they have shown an unacceptable level of knowledge in this field. Against this background, due to the low level of dentists' knowledge in relation to the prescription of antibiotics, there is ever-increasing evidence of odontogenic infections that are resistant to commonly used antibiotics(2, 9). In this context, Poeschl et al (2010) reported that 14% of odontogenic infections in the head and neck area were resistant to clindamycin, 14% to macrolides and 7% to penicillin G(9). On the other hand, if the treatment of such infections is unsuccessful, they might spread to dangerous areas such as the mediastinum, cavernous sinus, etc, to threaten the patient's life(7, 10). In addition, only one-third of dentists have access to an oral and maxillofacial surgeon when necessary and it is not possible to refer all the patients to oral and maxillofacial surgeons(8). Therefore, by taking all these into account, it is obvious that the knowledge of dental students and dentists should be promoted in relation to the treatment of odontogenic infections through high-quality educational programs for dental students and continuous education programs for dentists.

CONCLUSION

The knowledge of senior dental students in Tabriz University of Medical Sciences was poor in relation to the treatment of odontogenic infections, with no significant difference between male and female students.

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