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Knowledge of Dentists towards Antibiotic Prophylaxis in Bandar Abbas 2015

Saeedeh Sadr[1], Mohammad Vakili Nezhad[2], Sajad Ansari Fard[2*]

[1]Endodontology Research Center, Kerman University of Medical Sciences, Kerman,iran
[2]Student Research Committee, Hormozgan University of Medical Sciences, Bandar Abbas, Iran
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ABSTRACT

Since many patients who refer to dentist's offices are suffering systemic disease which requires dentist's attention in prescribing antibiotics, this study is conducted to determine dentist's knowledge about antibiotic's prophylaxis in 2015. This is a descriptive-analytic cross-sectional study on 126 dentists in Bandar Abbas in 2015. Sampling was conducted randomly by referring to dentist's office seeking participation if the dentist was willing to take part in the study. Questionnaires were handed out to dentists and taken back in the same day. Multi-variant regression was used for data analysis. 53.2% of participants were men and 46.8% were women. Mean age of participants were 44.9 years old. Mean time spent from general graduation was 11.20 years. Mean score of dentists to awareness questions were 72.9 (of a maximum score 104). According to scores of dentist in awareness questions, it can be concluded that dentists in Bandar Abbas have fairly poor knowledge which should be considered in the national dentistry educational program.

Keywords: Knowledge, Dentist, Antibiotic Practice
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Corresponding author: Sajad Ansari Fard
e-mail✉ sajad.ansarifard@hums.ac.ir
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INTRODUCTION

In recent years, due to longer human life, more elderly refer to dentists. Although many of these people are apparently healthy, most of them are suffering one or more chronic diseases such as cardiovascular diseases which should be considered in dentistry treatments [1]. Surgical methods like transplantation or replacement of heart valves lets patients live a longer life. Along with these important medical advances, dentists should fulfill special needs of these patients. Since their disease is only under control and the main cause of the disease is not removed and pharmacotherapy has numerous adverse effects. Consequently, awareness of medical problems and medications of patient is necessary [1].

It is estimated that there are approximately 20 million Americans (8% of the total population) with one or more cardiovascular disease, 58 million Americans with hypertension, more than 13.7 million American with coronary heart diseases (which is the most common chronic life-threatening disease in the United States), 11 million American with rheumatoid heart disease and 1.1 million American with heart attacks. Currently, one of every three man or ten women above 60 years old, are suffering apparent heart disease [2, 3]. Number of patients with endocarditis is estimated to 5% of the total population and use of artificial valves is considered to be the reason [2]. In Iran, in 100.000 patients admitted to hospital, 4.6% of them are suffering endocarditis 25-86% of which is due to dental surgeries while 85% of them may be prevented by antibiotic prophylaxis [4].

According to the statistics of systemic disease prevalence, it seems to be necessary that dentists, when asking for history, pay attention to medical history of patients as well to detect background disease of the patients to find at risk people, and knowledge of dentists are questionable according to other studies [1, 5].

In Preus *et al.,* study in 1992, it was founded that periodontists and oral and dental surgeons prescribe higher doses of antibiotics compared with general dentists. Moreover, antibiotic prescription is higher in periodontal diseases [6].
In Palmer et al. study it was reported that inappropriate type, duration, dosage and frequency of antibiotic usage increases the risk of microbial resistance leading to further infections [7].

Mayam-o-sadat Hashemipoor *et al.*, conducted a study to evaluate awareness Iranian dentists about antibiotic prophylaxis program to prevent endocarditis in 2007, 85 dentists take part. Correct answers to the need of patients with endocarditis history, rheumatoid heart disease and mitral valve prolapse were 97.6%, 90.4% and 88.7% respectively. The most common dental action which needed antibiotic prescription were tooth extraction and wrapping the yarn under the gums. More than half of participants have chosen amoxicillin as prophylactic. Mean awareness score were 37.4±14.3 % [8].

Moreover, in Saide Asdagh's study to evaluate the awareness of dentists in Ardabil about prevention from bacterial pericarditis in 2013, 85 dentists participated. Results showed that 9.4, 72.9 and 17.6 percent of dentists had low, medium, and high awareness respectively. No significant relationship between awareness of dentist and age, gender, or graduation duration was observed [9].

Another study was conducted by Hamid MahmoudHashemi *et al* titled 'what dentists know about prophylaxis diet' in Tehran in 2010. Sample size included 288 dentists in Tehran. The questionnaire consisted of three parts. Correct answers' mean in disease requiring antibiotic prophylaxis was 73.5%. Mean correct answers in dental surgeries requiring antibiotic prophylaxis and the newest antibiotic prophylaxis diet were 86.7% and 50% respectively. Mean awareness of dentists in Teheran was 72.5%. Most of wrong answers belonged to the newest antibiotic prophylaxis [10].

In Ahmed Bhayat Study in 2013 in University of Taibah, Saudi Arabia 66 percent for participants indicated that their awareness is based on previous instructions and journals. 45 and 65 percent of answers about cardiac status and dental surgeries correct were respectively and penicillin was selected as the choice drug they prescribed [11].

On the other hand in Boyle *et al*., study in 2006 on the awareness of dentists about antibiotic prophylaxis about bacterial endocarditis is was found that awareness of dentists and cardiologists in this field is weak and educations are not adequate [12]. In Amooian & Hassanpoor Hadighi study to evaluate the awareness of dentists about antibiotic prophylaxis of patients who are prone to infectious endocarditis conducted in Babol, it was found that most dentists of this region are not aware of standard prophylaxis diet proposed by American Cardiac Association and confirmed by American Dentistry Association [13].

Since cardiovascular patients are at high risks (e.g. stress and bacteremia) and inappropriate therapy may encounter them with uncompressible problems. Moreover, obeying principles of prophylaxis may reduce the risks of dental surgeries. This study is conducted to determine the awareness, attitude and performance of general dentists of Bandar Abbas about prescribing antibiotics conducted in 2015.

MATERIALS AND METHODS

This study was conducted as a descriptive-analytic cross-sectional study: descriptive in awareness recognition and qualitative in evaluation of effective factors on awareness. Data collection was through questionnaire that is brought at the end of materials and methods. Study society included dentists working in Bandar Abbas in 2015. Dentists who participated in this study were randomly selected form list of medical council. Of course, dentists who entered the study could freely leave the study. Study and data analysis were performed both in 2015.

Based on similar studies in this field [11, 14, 15] and population of dentists in Bandar Abbas, 150 was selected as sample size, 24 of which did not give questionnaires back which means 84% of answering rate. Collected data, after coding was entered to SPSS ver. 23. For each question two variants were defined. Options a, b, c, and d were entered as codes 1, 2, 3, and 4. Finally, correct, I am not aware, and wrong answers were given 2, 1, and 0 scores respectively.

To determine effective factors, four nominal Boolean variant (having general education, gender) and two quantitative variants (years passed from graduation and age) entered linear multi-variant regression model. Descriptive statistics were used to present dentists' responses about every question. For statistical comparison of dentists' scores in the groups T-test was used. For analytical statistics, since in type one error, A was considered 0.05, if type two error (P value) was less than 0.05 (P<a) it was considered significant.

RESULTS

126 dentists entered final analysis 67 (53.2%) and 59 (46.8%) of which were men and women respectively which showed that men were relatively more than women. Mean age of dentists in this study was 44.93 years old with a SD of 8.65 years ranging from 26 to 62. Mean years passed from graduation was 11.20 years with a SD of 6.60 years ranging from 2.0 to 28.0. Mean dentists' score was 72.9 (of a maximum of 104) with an SD of 2.31 ranging from 57 to 92.

Results of current study showed that some questions had a correct answer of 100% and all participants answered the questions correctly. These questions included questions about prophylactic prescription of antibiotics in patients with mitral valve prolapse or insufficiency or hemophilia, prescription of 600 mg clindamycin one hour before practice in patients with heart diseases for prophylaxis.

The question which was mostly answered wrongly was prescription of 2 g cephalexin one hour before practice in patient allergic to penicillin. In another study in the present region, mean and SD of awareness scores were calculated based on variants being checked and compared, though there were no hypothesis.

Table 1: Awareness score of dentists according to gender, Bandar Abbas, 2015

Awareness	Mean	Standard Deviation	T-test results
Women	78.2	2.29	0.002
Men	68.23	2.25	

Table 2: Awareness score of dentists according to site of practice, Bandar Abbas, 2015

Awareness	Mean	Standard Deviation	T-test results
Public	70.84	1.97	0.000
Private	75.54	2.27	

DISCUSSION

Current studies with the aim of evaluation of awareness of dentists in Bandar Abbas were conducted in 2015. According to the results it can be said that mean score of dentists in awareness questions was 72.9 of a maximum of 104. If 52 score is considered the medium level of awareness, awareness of dentists are higher than medium. In Boyle et al. study in 2006 on awareness of dentists about antibiotic prophylaxis in bacterial endocarditis, it was found that dentists and cardiologists face weakness and instructions are not adequate [9]. In Amooian & Hassanpoor Hadighi study to evaluate the awareness of dentists about antibiotic prophylaxis of patients who are prone to infectious endocarditis conducted in Babol, it was found that most dentists of this region are not aware of standard prophylaxis diet proposed by American Cardiac Association and confirmed by American Dentistry Association [13]. Moreover, Payami & Ebrahim Dneshvar in 2002 in the evaluation of awareness of general dentists in Tehran about the newest treatment and prophylaxis of patients with endocarditis showed that 40.5% of dentists have good awareness while 59.5% of dentists have fair knowledge. 21.5%, 46.0%, 23.0% and 9.5% showed very bad, bad, moderate and good knowledge about awareness of new antibiotic regime for prophylaxis of patients with cardiac endocarditis [15].

Results of current study can somehow be compared with the above study since in awareness section it was slightly more than mean possible score. Considering this results, weakness of studied dentists and poor performance of educational system should be mentioned as effecting factors in this field. Current study showed that awareness score of women dentists were higher men dentists.

CONCLUSION

Current study showed that awareness of dentists in Bandar Abbas in 2015 about antibiotic prophylaxis is relatively poor which requires attention of dentistry educational system.

Suggestions:
1. Adding courses on antibiotic prophylaxis
2. Holding special educational and retraining courses

3. Conducting similar studies in other regions of the country.

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