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Original Research Article

Evaluation of knowledge, attitude and practice of Tabriz dental general practitioners about infection control of taken impressions

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Abstract

Dental health care workers are always posed to the risk of croos-infection. The taken impressions are one of the possible ways of this type of infection; therefore this study was aimed to evaluate the knowledge, attitude, and practice of Tabriz general denal practitioners (GDPs) on the methods of disinfecting impressions. In this study 183 individuals were selected and the questionnaire filled out by them. The collected data was reported by descriptive statistics, Mann-Whitney U test and Kruskal–Wallis by SPSS.15. The mean knowledge grade was 9.4 (2 to 4) (23.4% poor knowledge level, 74.5% moderate and 2.2% good). At all attitude questions 80% of GDPs agreed. The mean practice grade was 5.1 (1 to 9) (13% of GDPs poor practice level, 71.2% moderate, and 14.7% good). There was no significant difference between the practice of dentist in relation to variables like the clinical experience and gender (P>0.05). Also, a significant difference between the knowledge of dentist with 10-20 years clinical experience was found (P<0.05). Totally, the knowledge level of dentists was at moderate levels and their attitude and practice level was moderate to high.

Keywords: Attitude, Dental impression, Infection control, Knowledge, Practice

INTRODUCTION

In recent years, many improvement methods in infection control are introduced while there are many problems in the dentistry school, private treatment center and health care systems (Al-Omari and Al-Dwairi 2005; Mutters et al., 2014; Agarwal et al., 2015). Infection control must be much attention due to close conctact of dentists, medical students and dental staff with blood and saliva of patients in dental treatment process. These concerns are highlighted about HIV infection and hepatitis B virus among healthcare workers especially the dentists (Aisien and Shobowale, 2005; Agarwal et al., 2015). Although numerous recommendations and strategies are allocated to medical and dental centers along with governmental organizations, reports show that control of the infection is not satisfied in the dental workplaces and hospitals (Yengopal et al., 2001). Health workers especially the dentists must take greater care because they have frequently deal with patients which associated with chronic infection diseases and materials and contaminated instruments (Abdelaziz et al., 2004). Consequently, it is essential that general dental practitioners have adequate knowledge about transmission methods of infections, as well as infection control such the safety glasses, gloves, hats, masks, aprons, along with the cleaning of surfaces and steriling the instruments. These procedures have obligatory character in the practice of actual Dentistry (Garbin et al., 2005). These preventive acts must be established by colleges and technical health institutes as part of the educational programs for under-graduation students. In

this way, these institutes will graduate knowledge and prepared experts for doing these procedures in the dental offices, with their activities based on the scientific information. This study was aimed to evaluate the knowledge, attitude, and practice of Tabriz general dental practitioners on the methods of disinfecting impressions.

METHODS AND MATERIALS

In total of 350 general dental practitioners of Tabriz, 183 individuals were selected by Cochran`s formula. For the development of this study, questionnaire was prepared based on previous literature. The questionnaire was separated into two sections: the first part included demographic questions (age, denger, work experience) and the next part of it, which had the questions of knowledge, attitude and practice about methods of disinfecting impressions. The reliability of the questionnaire was examined by doing a pilot study on 20 general dentists. The questions were re-evaluated by three prosthetics expert and revised after pilot study. The Cronbach's alpha value for the questions was 0.65 and be acceptable. The questionnaires were collected after contributors had signed an informed consent. The collected data was reported by descriptive statistics, Mann-Whitney U test and Kruskal–Wallis by SPSS.15. The p value was considered as statisticaly significant.

RESULTS

In this study, we included 43.5% (80 dentists) female and 56.5 % (104 dentists) male. Age distribution was ranged 25 to 65 years old which mean ± SD in female and male were 37.6± 9.26 and 39.99±9.38 years, respectively. This difference was not statistically significant ($p>0.05$ based on Mann-Whitney U test).

Mean of work experience between dentists was 10.2 year (0 to 32 years). Mean ± SD of work experience in female and male were 9.8±5.51 and 10.5±6.44 year, respectively. This difference was not statistically significant ($p>0.05$ based on Mann-Whitney U test). Information about knowledge and practice in the questionnaires is shown in Table 1. Totally, more than 80 % of dentists had positive answer about attitude on methods of disinfecting impressions. Also, there were two questions without answer (1.1%) about practice on methods of disinfecting impressions. Investigation of the knowledge and practice with respect to the work experience of general dentist are dedicated in Table 2. According to the Kruskal–Wallis test significant difference was not found about practice of dentists in spite of their knowledge during the work experience. The dentists with 10-20 years experience had more knowledge.

Analysis the knowledge and practice with respect to the gender of general dentist based on Mann-Whitney U test showed any significant difference between male and female (Table 3). Based on multiple regressions R and R squared calculated and were 0.21 and 0.14, respectively and analysis of regression on the variable are shown in Table 4.

DISCUSSION

In this study, knowledge, attitude and practice of Tabriz general dental practitioners on the methods of disinfecting impressions were analysied. Totally, knowledge of dentists was categorized as moredate to good level. On the other hands, difference between knowledge and attitude level among the female and male was not significant. However, relation between knowledge and working experience had significant difference since dentists with 10-20 years experience showed more knowledge about control of the infection. Dentists and dental assistants may be contact with patients with infectious diseases so they must consider risk of infection. Pathogenic microorganisms exist in oral cavity and breathing tract such as cytomegalovirus, HBV, HCV, herpes simplex virus, HIV, Mycobacterium tuberculosis, streptococci which could be transmitted to the dentists via direct contact (saliva, blood and oral sedrections) or indirect contact (injuries by sharp instruments, drop of aerosols and spatter) (Cohen, Jacobsen et al. 1997, Kohn, Collins et al. 2003). For evoiding the infection, dentists must be use barriers coating include gloves, mask and gloves. According to the various studies, dentists used gloves 100% (Al-Rabeah and Mohamed 2002) , 90 % (Morris et al., 1996), 42% (Treasure and Treasure, 1994), 91.8 % (McCarthy and MacDonald, 1997) , masks 90% (Al-Rabeah and Mohamed, 2002), 75% (Morris et al., 1996), 64.8 % (Treasure and Treasure, 1994), 74.8% (McCarthy and MacDonald, 1997) and protective spectacles 52% (Morris, Hassan et al. 1996) , 66.4% (Treasure and Treasure, 1994), 83.6% (McCarthy and MacDonald, 1997) during the dental treatment. In another study of 66 dental clinics, it is found that most of the dentists conformed to use of gloves and mouth mask during working with patients. Moreover, nearly 50% of the dentists had no information about vaccination against hepatitis B (Taha et al., 2015). Tada et al in 2015 studied changes in the infection control practice among the Japan's dentists in two year (2008 and 2011). They found that infection control practices were improved in 2011 in comparison to 2008 which knowledge was as a main precautions factor in infection control practices (Tada et al., 2015). Also, the microbial contamination of Dental Unit Water Systems (DUWS) was investigated by a questionnaire survey for risk of microbial infection. The

Table 1. Collected data about knowledge and practice of general dental practitioners on disinfecting impressions

Number of questions		Mean ± SD	Score		
			Weak (0-8)	Moderate (9-12)	Good (13-16)
Knowledge	16	9.4 ±1.98	43 (23.4 %)	137 (74.5%)	4 (2.2%)
practice	9	5.1±1.41	Weak (0-3)	Moderate (4-6)	Good (7-9)
			24 (13%)	131(71.2%)	27(14.7%)

Table 2. Comparison of knowledge and practice of general dentist with regard to their working experience

	Work experience (year)	No	Mean ± SD#	Kruskal–Wallis test	
				Chi-square	P value
Practice	< 10	123	5.06±1.36	1.1	0.577
	10-20	45	4.69±1.5		
	> 20	11	4.91±1.64		
knowledge	< 10	124	9.34±1.75	22.74	0.000*
	10-20	45	10.49±1.47		
	> 20	11	8.09±2.7		

*Statistically significant (p<0.05),# SD: standard deviation

Table 3. Comparison of knowledge and practice of dentist with regard to their gender experience

	Gender	No	Mean ± SD	Mann-Whitney U test	
				Z value	P value
Practice	female	80	4.8±1.49	-0.941	0.347*
	male	103	5.03 ± 1.34		
knowledge	female	80	9.41±1.75	-1.299	0.194*
	male	103	9.53±1.14		

*statistically non significant (P>0.05)

Table 4. Multiple regression analysis of dependent variable (knowledge, attitude, practice) on the methods of disinfecting impressions

	Unstandardized coefficients		standardized coefficients	T	P value
	B	Std.Error	Beta		
Constant	4.844	2.465		1.965	0.041
knowledge	0.134	0.059	0.174	2.265	0.025*
attitude	-0.024	0.073	-0.026	-0.331	0.741
Practice	0.031	0.017	0.133	1.775	0.038*

*p<0.05 as statistically significant

main findings were that the many of dentists did not clean, sterilize or control the microbial load of this system since these dentists would informed about regular checking for maintaining this water system, introduced the guidelines commendations for controlling the microbial level of DUWS (Καμμά et al., 2015).

Badrian et al in 2012 investigated the effect of disinfectant agents on alginate impression material and found that after 5 minutes, Epimax presented the main disinfection function on Staphylococcus aureus since could be completely eliminated the bacteria. The disinfection ability of other agents can be better as time elapses excepting for Pseudomonas aeruginosa which was removed totally in both 5 and 10 minutes. They revealed that alginate could be successfully cleaned by three kinds of disinfecting agents via spraying technique, although Epimax exhibited the highest disinfection function after 10 minutes than other agents (Badrian et al., 2012).

CONCLUSION

To conlude, the level of knowledge of the general dentists was moderately about on the disinfecting impressions but attitude and practice of them were in good level.

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