

Original Article

Knowledge of General Dentists of Kermanshah about Root Canal Therapy in 2012

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Abstract

Introduction: The present study was conducted to analyze the knowledge of general dentists of Kermanshah about root canal therapy in 2012.

Methods: In this descriptive cross-sectional study, a two-part questionnaire was designed and given to 93 general dentists in Kermanshah to complete. The first part of the questionnaire comprised of personal and professional information of the participant dentists and the second part of the questionnaire determined the awareness of the dentists about root canal therapy. Data were analyzed by SPSS software (version 20) using Pearson correlation coefficient, one-way analysis of variance (ANOVA) and independent t-test.

Results: A total of 84 dentists with the mean age of 39.3 ± 7.1 completed the questionnaires. The mean for 12 correct responses was 63.3%. The highest number of correct responses (86.2%) belonged to using proper intra-canal medication (calcium hydroxide) and the lowest number of correct responses (41.4%) was associated with the number of root canals in maxillary first molar (four canals). There was a reverse correlation between awareness and work experience ($P=0.002$, $r=-0.337$). Also, participation in retraining courses did not have significant impact on the knowledge of the dentists ($P=0.82$).

Conclusion: General dentists have average knowledge about root canal therapy. Higher quality regular training is recommended to promote the knowledge of the dentists about endodontic therapies.

Keywords: Root canal therapy, General practice, Endodontics

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Introduction

The success of root canal therapy depends on the appropriate cleaning, shaping, and obturation of the root canal system. When all of the present canals are not identified, they are not cleaned and prepared which consequently results in the failure of root canal therapy. Among maxillary teeth, the first molar

tooth has the most complicated canal morphology (1-2). The teeth do not always have a similar anatomy. Anatomic variations are often observed in terms of the number of roots, root canals, or even root canal forms. Most of the dentists treat all the teeth with the same technique which leads to more cases of failure in dental

therapy. While treating root canals, structure variations of the root canal system and their anatomic changes should be taken into account in order to improve the results of the treatment (3).

Nabavizadeh et al. (4) analyzed the knowledge of general dentists in Shiraz in terms of antibiotic prescription in endodontic therapies in 2011. Their results showed that only 29% of the dentists had full knowledge about antibiotic prescription for pulp and periapical diseases. Also, Unal et al. (5) evaluated the performance of 1527 general dentists in Turkey on root canal therapy in 2012. The findings of their study showed that gender and work experience of the dentists affected the type of intra-canal medication, estimation of working length by periapical radiographs, canal preparation, selection of sealer type, and canal obturation technique. Further, Slaus et al. (6) assessed the endodontic procedures among dentists in Belgium and reported that most of the general dentists did not follow the instructions for the quality of endodontic therapy.

Root canal therapy requires the knowledge and skill of the dentist. Therapeutical errors are originated from inability, inattention to treatment protocols, and inadequate knowledge about proper therapeutical principles. Lack of knowledge or skill in every stage of root therapy can lead to severe consequences that put the treatment prognosis at risk (7). Although epidemiologic studies have shown that incidence of dental caries has decreased in most of the developed countries, the number of root canal therapies has increased. The previous literature shows an urgent need among societies to treat root canal and it is most probable that general dentists provide a substantial amount of root canal therapy around the world (6, 8).

Since Kermanshah School of Dentistry has recently initiated its activity, it is necessary to obtain the basic information about the status of carried out therapies in private offices in order to perform future planning. Thus, the present study was aimed to analyze the knowledge of general dentists of Kermanshah about root canal therapy in 2012.

Methods

In this descriptive cross-sectional study, the general dentists of Kermanshah owning private offices were investigated in 2012. The list of general dentists having private offices (including their name and address) was obtained from the Vice Chancellor for Research at Kermanshah University of Medical Sciences. Having signed the written consent forms, all the participants were told about the confidentiality of their responses to questionnaires and encoded analysis of the data.

However, there was no obligation to complete the questionnaire on the part of the participants.

Based on the correct responses in a pilot study in which 20 dentists were investigated, a number of 80 participants were estimated as the minimum sample size. Considering the non-participation of some dentists, 93 dentists were selected using simple random selection method. Finally, 87 dentists agreed to participate in the study.

This study was carried out using a self-adminstrated questionnaire. The questionnaire consisted of two sections: the first section included demographic information such as age, gender, graduation year, work experience (since the start of private office), type of activity (full-time or part-time), daily activity hours, and participation record in retraining courses. The second part of the questionnaire included 12 questions formulated to determine the knowledge of dentists about root canal therapies based on reference books and studies conducted in this field (6, 8-9). To determine the validity of the questionnaire, content validity and face validity were used, taking into account the viewpoint of three endodontics specialists. The reliability of the questionnaire, however, was calculated using Chronbach's alpha coefficient in the pilot study (0.71).

Data were analyzed by SPSS software (version 20) using descriptive statistics, including frequency, mean, standard deviation as well as the statistical tests of one-way ANOVA, independent t-test, and spearman correlation coefficient. $P < 0.05$ was considered significant.

Results

In the present study, 84 general dentists of Kermanshah were evaluated, 62 (71.2%) of them were male and the rest were female. The means of age and work experience of the participants were 39.3 ± 7.1 and 10.8 ± 0.8 , respectively. The mean duration of daily work for part-time dentists was 5.5 ± 1.8 ; it was 7.5 ± 1.4 , however, for full-time dentists. From among the participant dentists, 77 (88.5%) had participated in the retraining courses, 8 (9.2%) had no record of participation in retraining courses and 2 of them (2.3%) had indefinite status.

The mean of the dentists' knowledge was 7.6 ± 2.6 out of the total score of 12. There was a reverse significant correlation between work experience and the dentists' knowledge ($P = 0.002$, $r = -0.337$). The means of the dentists' knowledge in the age ranges of 35, 36-45 and over 46 were 8.73 ± 2.4 , 7.76 ± 2.4 , and 5.55 ± 2.1 , respectively ($P < 0.001$) (Table 1). However, no significant difference was found between the knowledge of male and female dentists ($P = 0.59$).

The mean for the knowledge of the dentists with participation record in retraining programs was 7.53 ± 2.6 . This was, however, 7.75 ± 2.9 for the dentists with no record of participation in retraining courses ($P=0.82$)

Table 1. The relationship between age and mean of the participants' knowledge

| Age range | Number (%) | Mean \pm SD of knowledge | P-value |
|--------------|------------|----------------------------|----------------------|
| Less than 35 | 31 (35.5%) | 8.7 \pm 2.4 | P<0.001 ^a |
| 36-45 | 35 (39.6%) | 7.7 \pm 2.4 | P<0.001 ^a |
| Over 46 | 21 (24.9%) | 5.5 \pm 2.1 | P<0.001 ^a |

a: one-way ANOVA

Discussion

Based on the results of the present study, the general knowledge of root canal therapy among general dentists of Kermanshah was 63.3%. Few studies have investigated the knowledge of general dentists about endodontic therapies. Most of the studies conducted so far have analyzed the functional side (5-7) or exclusively one aspect of the dentists' knowledge (4). The findings of present study, in terms of knowledge level, showed no significant difference between male (62.1%) and female dentists (64.9%), which was similar to the results of similar studies carried out in this regard (4, 10).

In the present study, there was a statistically reverse significant correlation between knowledge and work experience, so that the knowledge level rose while the work experience increased. Mehdipour et al. (10) examined the dentists' knowledge about infection control in 2007 and reported a reverse relationship between the dentists' knowledge and work experience. Further, Nabavizadeh et al. (4) analyzed the knowledge of the general dentists of Shiraz about antibiotic prescription in endodontic patients in 2011. They reported that the newly-graduated dentists with little experience were more knowledgeable than the dentists with more experience. This reverse relationship between knowledge and experience is probably due to the fact that the knowledge of the newly-graduated dentists is more up-to-date. It can also be argued that the learned materials may be gradually subjected to forgetting over time (11).

Also, there was no significant difference, in terms of knowledge, between the dentists with record of participation in retraining courses and dentists with no record of participation in retraining courses. A study conducted in Belgium showed that the knowledge of dentists was not sufficient although they had participated in retraining courses (12). It seems that effectiveness of retraining courses is influenced by the quality or quantity of these courses. If retraining courses do not have favorable quality or the number of these courses is few, they cannot promote the knowledge of the participants. In addition, as more time is passed after a retraining course, it will probably have less effect. The motive of the dentists (like earning points in retraining course) can be

another probable factor affecting the efficiency of retraining courses and their effectiveness in enhancing their knowledge.

In this study, 51.7% of the dentists selected one-visit treatment for necrotic teeth. Various recommendations have been presented for one or multi-visit therapies. Of course, patients generally prefer one-visit therapy. The advantages of this therapeutical technique include decreasing the number of measures and preventing the risk of leakage of temporary dental restorations between therapeutical visits. Furthermore, this technique is cost-effective in terms of expenses and time (13-15).

In the present study, the number of participations in retraining courses was not investigated, while it seems that the number of participations in retraining courses plays an important role in the knowledge of dentists. Another limitation of this study was lack of the tendency of the dentists to cooperate and fill out the questionnaires.

Conclusion

General dentists of Kermanshah had average knowledge about root canal treatment and their knowledge declined by increasing the age and work experience.

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