

Cross Sectional Evaluation among General Dental Practitioners Regarding Levels of Endodontic Practice and their Training Needs: A Questionnaire Based Original Study

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ABSTRACT

Background: Advancements in dental technologies has seriously revolutionized the overall endodontic practice. This study was conducted to assess levels of endodontic practice and training needs among general dental practitioners of Bahadurgarh, Haryana.

Materials & Methods: This study was entirely based on a cross sectional ideology which was based on a questionnaire comprised of 50 general dental practitioners of Bahadurgarh, Haryana, India. The participants were divided into three age groups. We used a self-prepared closed ended questionnaire having questions regarding knowledge and awareness about advanced endodontic technologies and their intricate clinical applications. We also attempted to evaluate the endodontic training needs of studied general dental practitioners. The questionnaire was distributed among general dental practitioners. We processed the response data of dentists who honestly responded to this questionnaire. Responses were recorded and data was processed statistically to assess the real levels of endodontic practice.

Results: Statistical analysis was completed using statistical software Statistical Package for the Social Sciences (SPSS). The obtained data was subjected to appropriate statistical tests to obtain p values and other statistical inferences. $P \leq 0.05$ was considered as statistically significant. The participants were divided into three age groups. Total 27 male and 23 female dentists studied. The age group 36-45 years had 18 males and 15 females, 46-55 years had 5 males and 5 females and >55 years had 4 males and 3 females. The p value was found to be significant in group I.

Conclusion: Within the limitations of the study authors concluded that overall level of knowledge and endodontic practice among general dental practitioners of Bahadurgarh (Haryana) was moderate only. Approximately less than half of the studied general dental practitioners were using rotary endodontic techniques and practice. Somewhat similar inferences were drawn for electronic apex locator usages. The need of endodontic training after graduation is seemed to be a common opinion among practitioners.

Keywords: Questionnaire, Rotary Endodontics, Electronic Apex Locator.

INTRODUCTION

With the ever increasing advancements in dental technologies, the intricate usage of dental operating

microscope in endodontics is no more uncommon. Still the relative numbers of such practices are well below the expected levels.¹ This is true for rural as well as urban setups. As we all know that the

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endodontic clinical practice is largely depends on advanced instrumentations and technologies. The relative importance of advanced endodontic techniques in dentistry has also been well known for more than 25 years.² Unfortunately, the clinical procedures of endodontics are technically challenging because of the complex root canal systems.³ These challenges can be listed as identification and enlargement of all canals without procedural errors, maintaining correct working lengths, selecting the right preparation size for effective irrigation and adequate obturation. Multiple new instruments, materials and techniques are being developed in order to overcome these challenges. Literature has also shown about the imperative role of Rotary Endodontics and Electronic Apex Locator in different diagnostic and treatment procedures.⁴ These two advancements (Rotary Endodontics and Electronic Apex Locator) have gained its immense popularity last 15 years. These advances may also provide better treatment outcomes by reducing procedural errors and also increase the comfort for both the clinician and the patient. As on now; the usage of Rotary Endodontics and Electronic Apex Locator has been increasing day by day among dentists and particularly among endodontists. As we all are aware that conventional endodontics has been routinely practiced mainly based on clinical expertise and experiences. However, with the profound usages of advanced endodontic techniques this blind approach has produced enhanced success rates. Different pioneer workers have shown different inferences regarding advanced endodontic techniques. Most of the related studies have shown different advantages of various techniques and instruments.⁵⁻⁶ This study was conducted to assess the levels of endodontic practice and training needs among general dental practitioners of Bahadurgarh, (Haryana). Here, authors have genuinely attempted to explore the actual level of endodontic practice among the studied dental practitioners.

MATERIALS & METHOD

This cross sectional, questionnaire based study included of 50 general dental practitioners of Bahadurgarh, Haryana. The study was conducted in the year 2018. The contact details of general dental practitioners were obtained from the society registry of general dental practitioners. We found

that a total of 121 registered in this society. Out of which, 61 were not keenly practicing, rest remaining was 60. On investigating the responses of the participants, we found that 10 of 60 not responded to our questionnaire. Consequently final sample including in the study was total 50 general dental practitioners of Bahadurgarh, (Haryana). A self prepared and close ended questionnaire containing 8 questions were given to the dentists at their clinics. The confidentiality and other rights of the respondents and their freedom of expression were completely ensured. Informed consent was obtained from the general dental practitioners those were enthusiastically ready for participation in study. To ensure absolutely stress-free responses, the study was completed over a period of 2 months. In this term, practitioners were asked to complete the questionnaire. The actual importance of this study was explained in detail to all participating practitioners. The results were subjected to statistical analysis using chi-square test. P value less than 0.05 was considered as significant.

RESULTS

All the observational findings were compiled and sent for statistical evaluation using statistical software Statistical Package for the Social Sciences version 21 (IBM Inc., Armonk, New York, USA). The obtained data was subjected to suitable statistical tests to calculate p values and other statistical inferences. Responses and outcomes were also studied in relation to gender of the participants. The participants were divided into three age groups. Total 27 male and 23 female dentists were studied. Table 1 and graph 1 illustrate that age group 36-45 years had 18 males and 15 females, 46-55 years had 5 males and 5 females and >55 years had 4 males and 3 females. The p value was found to be significant in group I. Table 2 shows that 22 dentists have actually used Rotary Endodontic instruments/technique to perform different endodontic procedures. 21 dentists have actually used Electronic Apex Locator to perform different endodontic procedures. 26 dentists think that the usage of such instruments/technique must be made mandatory for routine endodontic procedures. 38 dentists believe that it is easy of locate the root apex of maxillary molars using Electronic Apex Locator. Approximately 41 dentists think that endodontic training is essential after graduation. However, they

expressed their inclination towards hand-on courses rather than personal training. 21 dentists would like to advice their colleagues for installation these advanced endodontic instrumentations at their clinics. Significance differences [$p < 0.05$

significant] were noticed when they were enquired about question no 4, 5, 6, 7. The observed p values were 0.01, 0.01, 0.00 and 0.01 for these parameters respectively.

Table 1: Age & gender wise distribution of dentists.

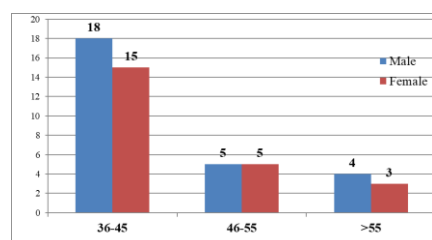
Age Group (Yrs)	Male	Female	Total	P value
36-45	18	15	33 [66 %]	0.01*
46-55	5	5	10 [20 %]	0.10
>55	4	3	7 [14 %]	0.80
Total	27	23	50	-

* $p < 0.05$ significant

Table 2: Assessment of questionnaire responses with related statistical correlations.

Questionnaire	Variables	No. of Respondents	Chi Square Test (Pearson χ^2)	P value
1	Do you actually use Rotary Endodontic instruments/technique to perform different endodontic procedures?	Yes = 22 No = 28	0.08	0.54
2	Do you actually use Electronic Apex Locator to perform different endodontic procedures?	Yes = 21 No = 29	0.22	0.08
3	Do you think that usage of these instruments/technique must be made mandatory for routine endodontic procedures ?	Yes = 26 No = 24	0.13	0.60
4	Do you believe that it is easy of locate the root apex of maxillary molars using Electronic Apex Locator?	Yes = 38 No = 12	0.75	0.01*
5	Do you think that endodontic training is essential after graduation?	Yes = 41 No = 09	0.64	0.01*
6	Do you believe that usages of Electronic Apex Locator yields relative better treatment outcomes ?	Yes = 42 No = 08	0.81	0.00*
7	Do you really think that it costs too much?	Yes = 35 No = 15	0.50	0.01*
8	Would you like to advice your colleagues for installation these advanced endodontic instrumentations at their clinics?	Yes = 21 No = 29	0.41	0.70

* $p < 0.05$ Significant



Graph 1: Graphical representation of dentists [age & gender wise].

DISCUSSION

Literature has moderately evidenced about Electronic Apex Locator, Rotary Endodontic instruments/technique and their related significances in the field of endodontics.⁷ As we all are aware that among all the specialized dental practitioners, endodontists have a more percentage of clinical exposure. Literature has also shown different studies wherein Electronic Apex Locator and Rotary Endodontic instruments/technique has been shown to be very effective in detecting the apex and canal preparation.⁸⁻¹⁰ Such endodontic techniques and advancements have also been shown to improve the clinical outcomes in managing the recurring cases. Some of the researchers have also shown Electronic Apex Locator's usefulness in precisely locating apex of maxillary molars.¹¹⁻¹² According to European Society of Endodontology (ESE), endodontic treatment must be carried out only when the tooth is absolutely isolated.¹³ The relative essentiality of radiographic examination before root canal treatment was well established in the literature. It literally plays a key role in diagnosing the disease by combining the findings of oral examination and symptoms which are expressed by patient. Furthermore, assessing preoperative radiographs gives an outlook about length, curvature and number of roots before commencing endodontic treatment.¹⁴ Conventionally, working length estimation has been done by radiographs with root canal instruments for years. Nevertheless, a radiograph only gives a two-dimensional image which represents a three-dimensional object. This can result into superimposition of roots and anatomic structures.¹⁵ Therefore; it can lead to mistaken assessment of working length. Moreover, mistaken apex locations are one of the very common dilemmas in endodontic practice. It can lead to wrong determination of working length and

obturation.¹⁶ In addition; it has one more drawback which is the ionizing radiation. Electronic apex locators which do not require radiation exposure, locate the canal terminus by means of electronic measurements. In our study, 21 dentists had actually used Electronic Apex Locator to perform different endodontic procedures. 26 dentists think that the usage of such instruments/technique must be made mandatory for routine endodontic procedures. 38 dentists believe that it is easy of locate the root apex of maxillary molars using Electronic Apex Locator. Approximately 41 dentists think that endodontic training is essential after graduation. 21 dentists would like to advice their colleagues for installation these advanced endodontic instrumentations at their clinics. The need of endodontic training after graduation is seemed to be a common opinion among studied practitioners. However, they expressed their inclination towards hand-on courses rather than personal training.

CONCLUSION

The screened responses were very crucial as they reflected the present scenario of overall level of knowledge and endodontic practice among studied general dental practitioners. Within the limitations of the study authors concluded that overall level of knowledge and endodontic practice among general dental practitioners of Bahadurgarh, (Haryana) was moderate only. Approximately less than half of the studied general dental practitioners were using rotary endodontic techniques and practice. Fairly similar outcomes were drawn for electronic apex locator usages. The need of endodontic training after graduation is seemed to be a common opinion among practitioners. In the recent past, a number of promising clinical innovations have been seen in the field of endodontics. We strongly believe that regular organizations of educational programs and technique demonstrations must be done to raise the overall levels of endodontic practice. Nonetheless, we expect other large scale genuine studies to be conducted that could further establish certain concrete norms in this perspective.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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