



Knowledge Regarding Technical Aspects of Endodontic Treatment

KEYWORDS

Endodontic Treatment, Survey, General Dental Practitioners

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ABSTRACT

The assurance of the quality of service rendered by a member of the dental profession is an essential feature of any system of peer review in dentistry. In receiving care of a specialized nature such as endodontic treatment, patients need and deserve treatment that meets the standard of care. Success in endodontic treatment depends on adequate preparation of the root canal space and obturation of the root canal system to prevent the passage of micro-organisms and fluid along the root canal. The attitudes and approaches of general dental practitioners (GDPs) toward endodontic therapy reflect the quality of the root canal treatment (RCT) conducted in a country. The purpose of this research is to gather information about the quality and quantity of root canal treatments carried out by general dental practitioners and endodontists in khammam town, Andhra pradesh

Introduction:

Endodontic treatment is complicated and technically very demanding. A varying degree of success of endodontic treatment has been reported, in some studies it is as high as 96% while in others it is as low as 60%.¹⁻⁴ Historically, endodontic treatment has been a part of general dental practice as the recognition of endodontics as a specialty in most parts of the world did not occur until the 1960's or later.^{5,6} Root canal treatment is one of the fastest growing disciplines in endodontic practice. Results of longitudinal studies where treatments were provided mainly by endodontists or highly-skilled general dentists have clearly demonstrated the possibility of controlling and eliminating periapical pathology when endodontic treatment standards, including strict asepsis, are maintained^{1,2}. This enhances favourable outcomes of endodontic therapy⁴. Many innovative concept techniques and instruments have been introduced for successful endodontic treatment. Treatments performed by experts and highly devoted personnel under favorable conditions far from clinical reality, show high success rates. But success of endodontic treatment also depends on knowledge of general practitioner and endodontist regarding technical aspect of endodontic treatment. The outcome of endodontic therapy also been associated with the pre-operative diagnosis of the tooth, microbial factors, maintenance of root canal treatment standards including the quality of both root canal fillings and coronal restorations and individual factors such as the dentist knowledge, attitudes and skills. The environment in which the dentist works may also impact the outcome of root canal therapy.^{4,9,10,11} Overall, there is scarce scientific data about the general dental practitioner's approach to endodontic therapy and its impact on the success of root canal treatment is unclear.⁵⁻⁸ The purpose of present study is to investigate the current opinions of general dental practitioner and regarding technical aspects of endodontic treatment compared with the endodontists.

Materials and Methods

Present study was conducted among private dental practitioners, who were practicing in khammam and also post graduate students and staff from department of Endodontics and Pedodontics. Total sample of 60 comprising 30 in each group. A questionnaire survey form was distributed among this 60 participants regarding knowledge and techni-

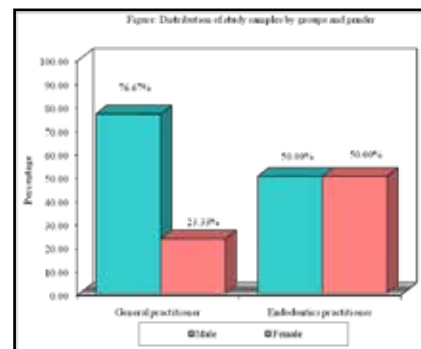
cal aspects used in endodontic practice. Questionnaire type is close ended comprised 15 questions, respondents were asked to complete questionnaire form. The dentists were issued confidentiality and were instructed not to put their names on the questionnaire form or on envelop. The envelops were collected and dropped in to a bag by the respondent to remove any bias. The investigator was blinded as to the identification of the respondent. Demographic information collected included sex and number of years in practice, was a part of a questionnaire. Data was coded computerized and analyzed by using a SPSS soft ware study was approved by institutional ethical committee and informed concerned was obtained from all the participants.

Results

Simple descriptive statistics were used together with Chi-square test. The significance threshold for all tests was set at $p < 0.05$. Only single unequivocal replies were included in calculating frequencies and percentages.

Table 1: Distribution of study samples by groups and gender

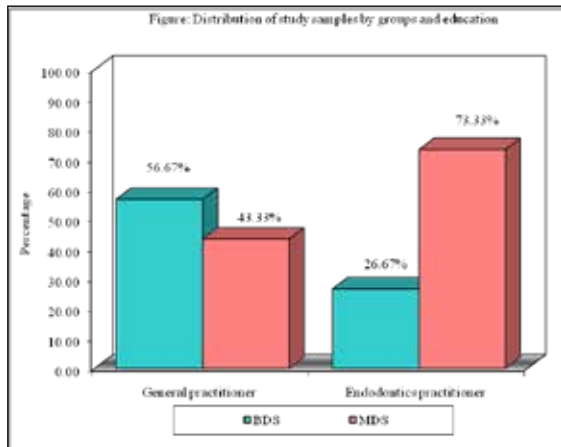
Group	Male	%	Female	%	Total
General practitioner	23	76.67	7	23.33	30
Endodontics practitioner	15	50.00	15	50.00	30
Total	38	63.33	22	36.67	60



Among all general practitioners 76.6% of males and 23.3% females participated in study. Among endodontists 50% males 50% females were participated.

Table2: Distribution of study samples by groups and qualification

Group	BDS	%	MDS	%	Total
General practitioner	17	56.67	13	43.33	30
Endodontics practitioner	8	26.67	22	73.33	30
Total	25	41.67	35	58.33	60



When considering groups and education 56.67% of general practitioners are BDS 43.33% are MDS. Among endodontic practitioners 73.3% are MDS and 26.67% are BDS who belong to endodontic department.

Discussion

The results of the present study revealed the attitude, technique, materials and methods employed by the general dentists and endodontists to perform root canal therapy. In general, majority of them were not following the modern standards of endodontic treatment. The results emphasize the existing challenges in general dental practitioners and Endodontists. The survey questionnaire is a common method used in evaluating health care systems. The major disadvantage of surveys is that often only low response rates are obtained when the questionnaire is posted or mailed to dentists. Thus, in order to overcome this drawback, in the present study, the data was collected by meeting the dentists in person and the response was noted.

Rubber Dam Utilization:

According to the quality guidelines for endodontic treatment, infection control is regarded very important in root canal treatment¹². Use of rubber dam is considered to be the minimum standard in infection control. Although the application of rubber dam is always recommended as a standard during root canal treatment procedure to provide isolation, protection and improve visual access, only few of them follow this and not as a routine practice¹³. In this survey, approximately 40% of the dentists reported rubber dam use always, (5%) often, (15%) occasionally, while 40% of respondents never used it. There was a statistically significant trend for endodontists to use a rubber dam always or often as compared to general practitioners.

Table 1 p=0.0000 p<0.05

	General practitioners(n=30)	Endodontists (n=30)	Total n=60
Often	33.33%	66.67%	5%
Never	100%	40%	40%
Occasionally	0%	0%	15%
Always	0%	0%	40%

Use of Safe Ended Burs during Access Cavity Preparation

During access cavity preparation among all participants 36.67% used the safe ended burs consistently, 30%-often, 16% rarely and 16% never used safe ended burs. There is statistical significance between general practitioners and endodontists.

Table 2 p=0.0476 p<0.05

	General practitioners(n=30)	Endodontists (n=30)	Total n=60
Rarely	70%	30%	16.67%
Never	80%	20%	16.67%
Consistently	40%	59.9%	36.67%
Often	33.35%	66.67%	30%

Use of hand instruments during root canal preparation

Among all practitioners most of them were using k-files along with the NITI files.90% of them were using NITI files, reamers were used by 5%, k-files by 5%, of practitioners but there was a significant difference between the general practitioners and endodontists.

Table 3 p=0.0910 p<0.05

	General practitioners (n=30)	Endodontists (n=30)	Total n=60
Reamer	66.67%	33.33%	5%
NITI files	46.30%	53.70	90%
H-files	0%	0%	0
K-files	100%	0%	5%

Use of gates glidden burs to aid entrance in to orifice

During access cavity preparation among all practitioners 26.67% of them never used gates glidden drills 15% used rarely, 21.67% used often. There is significant difference between general practitioners and endodontists.

Table 4 p=0.0010 p<0.05

	General practitioners (n=30)	Endodontists (n=30)	Total n=60
Never	87.5%	12.50%	26.67
Rarely	11.11%	88.89%	15%
Consistently	0%	0%	0%
Often	30.77%	69.23%	21.67%

Irrigation and disinfection

Irrigations were used during chemo mechanical root canal preparation .Sodium hypochlorite was the most popular choice as a root canal irrigant and 41.67% of the participants used it consistently, 35% often , 3.33% occasionally while 20% never used it.

Table 5 p=0.6279 p<0.05

	General practitioners (n=30)	Endodontists (n=30)	Total n=60
Often	47.62%	52.38	35%
Never	66.67%	33.33%	20%
Rarely	50.00%	50.00%	3.33%
Consistently	44.00%	56.00%	35%

Use of Chlorhexidine solution as a primary irrigant

Use of Chlorhexidine as a primary irrigant among respondent practitioners is 40% of them never used it 25% consistently, 20% rarely, 15% often used it.

Table 6 p=0.0753 p<0.05

	General practitioners(n=30)	Endodontists (n=30)	Total n=60
Often	66.67%	33.33%	15%
Never	29.17	70.83%	40%
Rarely	91.67	8.33%	20%
Consistently	40.00	60.00%	25%

Use of 17% EDTA solution as a primary irrigant

General practitioners who used 17% EDTA prior to obturation 51.67% used rarely 20% of them never used it 10% consistently 18.33% used it often, 21.67% never, 18.33% consistently, 13.33% often. There is statistical significance between general dental practitioners and endodontists

Table 7 p=0.0195 p<0.05

	General practitioners (n=30)	Endodontists (n=30)	Total n=60
Consistently	33.33%	66.67%	10%
Never	83.33	16.67	20%
Rarely	41.94	58.06	51.67%
Often	45.45	54.55	18.33%

Use of ca(OH)2intra canal medicament in cases of pulpitis

Use of calcium hydroxide as intra canal medicament in cases of pulpitis by respondent practitioners is as follows 45% of them used it often, (23.33%) never, (18.33%) rarely, (13.33%) consistently, used It. there is significant difference between general practitioners and endodontists in use of calcium hydroxide as intra canal medicament.

Table 8 p=0.0439 p<0.05

	General practitioners(n=30)	Endodontists (n=30)	Total n=60
Consistently	25%	75%	13.33%
Never	81.82	18.18%	18.33
Rarely	35.71%	64.29%	23.23
Often	51.85	48.15%	45%

Use of intra canal medicament in case of apical periodontitis

Use of calcium hydroxide as intra canal medicament in cases of periodontitis by respondent practitioners in this survey shows(36.07%) of them used it often, 30% rarely, 28.33% never, 5% consistently and there is significant difference between general practitioners and endodontists in use of calcium hydroxide as intra canal medicament in apical periodontitis.

Table 9 p=0.0298 p<0.05

	General practitioners(n=30)	Endodontists (n=30)	Total n=60
Consistently	33.33%	66.67%	5.00%
Never	72.22%	27.78%	30.00%
Rarely	58.82%	41.18%	28.33%
Often	27.27%	72.73%	36.67%

Use of intra canal medicament in case of periapical lesion

Use of intra canal medicaments in case of peri apical lesion by respondent practitioners is 55% often 28.33 % consistently, 10% rarely, 6.67% never. There is significant difference between general practitioners and endodontists.

Table 10 p=0.0028 p<0.05

	General practitioners(n=30)	Endodontists (n=30)	Total n=60
Consistently	17.67%	82.35%	28.33%
Never	83.33%	16.67%	10.0%
Rarely	100%	0%	6.67%
Often	54.55%	45.45	55.00%

Root canal obturation technique

The quality of root canal filling is a major factor that contributes to the overall success of endodontic treatment. Root canal obturation serves to prevent the ingress of micro-organisms into the already cleaned root canal system. Either cold or warm lateral compaction of gutta-percha with a root canal sealer was used by most of the respondent's .41.67% are using consistently 5% are using other than cold or warm lateral condensation 53.3% are using it often.

Table 11 p=0.8297 p<0.05

	General practitioners(n=30)	Endodontists (n=30)	Total n=60
Consistently	48%	52%	41.67%
Never	66.67%	33.33%	5%
Rarely	0%	0%	0%
Often	50%	50%	53.33%

Use of root canal sealers (ZNOE, AH+, ENDOMETHASONE, RESIN BASED SEALER)

Most of the practitioners use ZNOE as sealers few use AH+ RESIN BASED SEALERS most endodontist practitioner use all three sealers oftenly. 43.3% are using ZNOE consistently 3.33% are using other than ZNOE 50% are using ZNOE often.

Table 12 p=0.2321 p<0.05

	General practitioners(n=30)	Endodontists (n=30)	Total n=60
Consistently	46.15%	53.85%	43.33%
Never	100%	0%	3.33%
Rarely	0%	0%	0%
Often	46.67%	53.33%	50%

Type of post endo restoration use: for anterior tooth (GIC, COMPOSITE)

Most of the practitioners use composite for post endo restoration for anterior tooth.63.3% use oftenly, 35% consistently, 1.67% never use it. There is no significant difference between endodontists and general practitioners.

Table 13 p=0.0380 p<0.05

	General practitioners(n=30)	Endodontists (n=30)	Total n=60
Consistently	28.57%	71.43%	35%
Never	100%	0%	1.67%
Rarely	0%	0%	0%
Often	60.53%	39.47	63.3%

Type of post endo restoration use for posterior teeth (composite,amalgam,ketac molar,miracle mix)

Most of the endodontist use composite and ketac and ketac molar and general practitioner prefer miracle mix and amalgam .45% of them use consistently 53.33% use them often.

Table 14 p=0.1895 p<0.05

	General practitioners(n=30)	Endodontists (n=30)	Total n=60
Consistently	37.04%	62.96%	45%
Never	100%	0%	1.67%
Rarely	0%	0%	0%
Often	59.38%	46.63%	53.33%

Recommendation of crown for every root canal treated tooth

Among all practitioners 83.3% of them recommend crown for every root canal treated tooth 11.67% of them will not use crowns. There is no significant difference between endodontists and general practitioners regarding use of crowns for every root canal treated tooth.

Table 15 p=0.0876 p<0.05

	General practitioners(n=30)	Endodontists (n=30)	Total n=60
Yes	50.94%	49.06%	88.33%
No	42.86%	57.14%	11.67%

ANNEXURE

1. Use of rubber dam?

- Always
- Occasionally
- Never
- Often

2. Do you use safe ended burs during access preparation?

- Often
- Consistently
- Never
- Rarely

3. Use of hand instruments during root canal preparation?

- Reamer
- NITI files
- H-file
- k-file

4. Use of Gates Glidden burs to aid entrance in to orifice?

- Often
- Rarely
- Consistently
- Never

5. Use (range of 1-5%) sodium hypochlorite solution as the primary irrigant?

- Often
- Never
- Rarely
- Consistently

6. Use of 2% chlorexidine solution as a primary irrigant?

- Often
- Never
- Rarely
- Consistently

7. Use of 17%EDTA solution as an irrigant just prior to obturation?

- Often
- Never
- Rarely
- Consistently

8. Use a combination of all three irrigants?

- Often

- Never
- Rarely
- Consistently

9. Use of intracanal medication in cases of pulpitis(Ca(OH)₂) and others no use of medication, others?

- Often
- Never
- Rarely
- Consistently

10. Use of intracanal medicament in case of periodontitis (Ca(OH)₂,Ca(OH)₂ and others, no use of medication, others

- Often
- Never
- Rarely
- Consistently

11. Use of intracanal medicament in case of periapical lesion (Ca(OH)₂,Ca(OH)₂ and others,no use of medication,others

- Often
- Never
- Rarely
- Consistently

12. Rootcanal obturation technique (cold lateral condensation, single cone gutta-percha, warm gutta-percha

- Often
- Never
- Rarely
- Consistently

13. Use of root canal sealers (AH+ endomethasone, zinc, resin based sealers

- Often
- Never
- Rarely
- Consistently

14. Type of post endo restoration use for anterior teeth (GIC composite)

- Often
- Never
- Rarely
- Consistently

15. Type of post endo restoration use for posterior teeth (composite, amalgam, ketacmolar,miracle mix, GIC

- Often
- Never
- Rarely
- Consistent

16. Will you recommend crown for every root canal treated tooth

- Yes
- no

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