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TO ASSESS THE PREDOMINANT PROTOCOL FOR CONTEMPORARY ENDODONTIC PRACTICES AMONG ENDODONTISTS IN CENTRAL INDIA

Dental Science

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ABSTRACT

Introduction: Endodontics is always striving for predictable treatment outcomes with newer materials and endless innovations. Thus, we conducted a study among the endodontists of Central India to assess the current protocols in their clinical practice. Methods: A questionnaire was mailed to 120 endodontists with open and close ended questions. Results: 77% of them used cotton roll for isolation whereas only 43% used rubber dam. 25% used microscopes for every case whereas 32% used it for special cases only. The common irritants preferred by the respondents was sodium hypochlorite followed by normal saline. They also reported that 81% referrals were for retrieval of the fractured instrument, 70% for calcified canals and 54% for resolution of large periapical lesions. Conclusions: Traditional protocol is followed and contemporary endodontic practices are still not popular. Training workshops should be carried out for endodontists to get accustomed to newer protocols.

KEYWORDS

Endodontist , Rubber dam , Microscope , Ultrasonics.

INTRODUCTION:

Endodontic treatment procedure is considered one of the essential elements in dental practice. The contemporary endodontics involves the introduction of many new instruments, materials, and techniques for predictable outcomes [1] .Technologies available for use in dental clinics today include battery or electric motors with gear-reduction handpieces using nickel titanium rotary file systems, new-generation electronic apex locators (EALs), improved digital radiographic sensors, operating microscopes, and ultrasonic units with a variety of tips designed specifically for use when performing both nonsurgical and surgical endodontic procedures. [2]

There are also new materials and methods for obturating the prepared root canal system.The most important innovation is the use of magnification to enhance visualization and use of contemporary techniques for root canal preparation using ultrasonic, rotary instruments and Irrigation protocol. Each of these innovations has dramatically impacted endodontics and significantly contributed to more predictable success. The technical demands and level of precision required for an endodontist to perform successful endodontic procedures is achieved by careful manipulation of instruments and by strict adherence to biological and mechanical principles[3].

Current postgraduate endodontic training programs include the implementation of these new technologies and materials. New ultrasonic units and specially designed endodontic tips provide the clinician with the options of performing nonsurgical retreatments and surgical root-end preparations that conserve more tooth structure. The location and instrumentation of calcified root canal systems are also enhanced using the ultrasonic technology. The improved magnification and illumination systems allow the operator to better visualize the working field during the nonsurgical and surgical procedures they perform.

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Aim of the study is to determine the current perspective of endodontists towards endodontic treatment in Central India.
The other objectives are to evaluate current trends, newer technique & materials preferred by endodontists and to determine primary reasons for endodontic referrals by the general dental practitioners in Central India.

METHODOLOGY:

The research protocol designed was ethically approved by the Institutional Ethics Committee. The study was carried out in September 2017 in Central India. A total 120 Endodontists, working in government and private sector were sent a questionnaire via email and responses were collected. Reminders were sent at regular intervals to all the participants to ensure maximum participation.

Data were collected through a structured and validated questionnaire with close-ended and open-ended questions. The questionnaire did not disclose the identity of any participant.

The prepared questionnaires were personally mailed to each dentist via Google Docs. An explanation was attached about the importance of their participation and the study purposes. Loss of participants was considered when professionals did not respond within month duration. The questionnaire was consisting of the questions regarding various aspects of endodontic treatment: - choice of instruments, use of magnification, isolation methods, techniques for root canal preparation , use of ultrasonics , intracanal medicaments, choice of obturating techniques .

The responses of the questionnaires were entered in the Google Docs database.

RESULTS:

Out of the 120 Endodontic practitioners, contacted by e-mail, 100 (83%) responded, and completed the survey. The percentages calculated for each section of the questionnaire are shown in subsequent pie charts.

Endodontic treatment begins with diagnosis , and we found in our study that 83% of respondents use digital radiograph while 45% of the practitioner uses cold test for diagnostic of tooth . When asked about the mode of sterilisation of endodontic files , 75.4% endodontic practitioners used Glass bead sterilizer and 52.3% used autoclave .

Isolation plays an important role in the dental treatment and it was seen

in the current study that the use of cotton roll was 77% , similar to the use of suction tip i.e. 75% .

In Central India, it was interesting to see the use of rubber dam by endodontic practitioners. It was seen that 28% used rubber dam for every case whereas 52% of the respondents used rubber dam for only special cases. See figure no.1

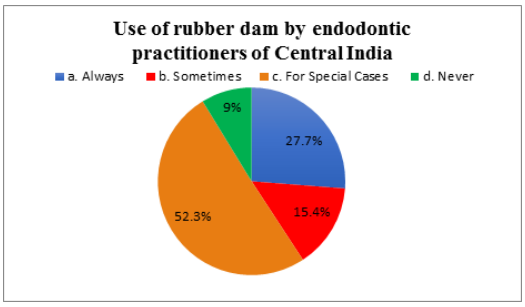


Figure 1: Use Of Rubber Dam By Endodontic Practitioners Of Central India.

The introduction of microscopes in dentistry has shown great impact on the outcome of root canal treatment. The use of magnification by the respondents reported in our study was 25% for every case whereas 32% of respondents used microscope for special cases only. See table no.2

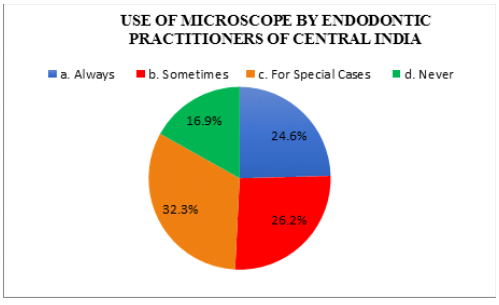


Figure 2 : Use Of Microscope By Endodontic Practitioners Of Central India.

Patients were asked about the different methods for measuring the working length and in our study 83% of the respondents used apex locator for measuring the working length whereas 75% of the respondents used radiograph. The use of hand files (stainless-steel files and hand protaper files) by the respondents was reported as 78% i.e. whereas among rotary files : the usage was reported 79% for protaper file system followed by 37% for hyflex files by the practitioner. For successful treatment of root canal, cleaning of the canal is paramount important so, the common irrigants preferred by the respondents in our study was sodium hypochlorite that is 83%, followed by normal saline which was 71% . The most frequently used intracanal medicament seen was calcium hydroxide which in our study was reported as 94%.

The technique commonly reported for biomechanical preparation was crown down technique as 48% of practitioners used this technique. For a hermetic seal and a predictable obturation , newer techniques have been introduced to ensure lateral canal fills. In the present study , it was reported that the use of calamus was maximum (68%) followed by Obtura (48%) and Hot shot (38%) . When the mode of removal of fractured instrument was considered , it was seen that 56% of respondents used ultrasonic tips. In recent decades, it has been seen that there has been an increase in speciality practice in every field , there has been a parallel increase in the patient referral to endodontists by the general dental practitioners . The present study reported that 81% of the referrals were for retrieval of the fractured instrument,70% and 69% were referred for calcified and curved root canal anatomy, and 64% and 54% were referred for surgical intervention and large periapical lesions respectively. See figure no.3

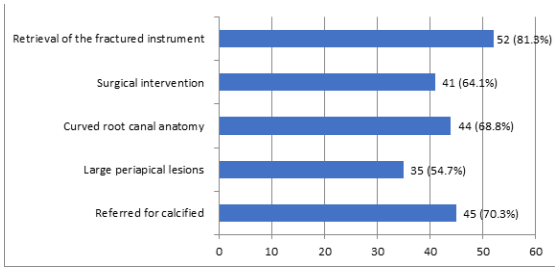


Figure 3: Reasons For Endodontic Referrals By General Practitioners Of Central India.

DISCUSSION:

This survey involved a range of respondents in terms of their clinical experience and practice setup. In this survey , the vast majority of respondents preferred to use digital radiographic technique for diagnostic methods which was similar to the study undertaken by Lee et al [2]. Anabtawi et al in 2014 concluded in his study that 74% endodontics used rubber dam in every case and 44% of respondents used it for special cases, whereas in our study 52% endodontics used rubber dam for special cases and 30% used it for every case[4].

According to Kersten et al. the use of magnification was 52% in 1999 in America which increased to 90% in 2007 whereas in contrast in India , the use of magnification was found to be lesser which was probably because of lesser training of the operator on the microscope [5] . In our study, the use of magnification was 35% in special cases and 28% for every case. In the present survey, it was observed that the choice of irrigants was mainly sodium hypochlorite followed by normal saline that is similar to the study conducted by Clarkson et al. in Australia in 2003[6].

The majority of respondents in our study used Calcium hydroxide paste (93%) for intracanal medicament followed by triple antibiotic paste (57%) and this same scenario was found in the survey conducted by Ruchi Gupta et al in India[1]. Madarati et al in his study found that the use of Ultrasonics for removal of fracture instrument was more that is 98% and the present survey is in accordance as the use of ultrasonics for removal of fracture instrument was 75% [7].

Ree MH. et al. stated that patient's referral to endodontist by general dental practitioners was 54% for the instrument retrieval followed by 43% for the calcified canals followed by 37% and 35% for curved canal and large periapical lesion and very less (11%) for surgical intervention[8]. In the present survey, respectable amount (81%) of patients were referred to endodontists for instrument retrieval and 70% for calcified canal. We also found that 44% and 35% were referred for curved canals and large periapical reasons respectively . In a study by Ree MH. et al., only 11% were referred for surgical intervention but in this survey, there were 64% respondents for the surgical referred cases.

CONCLUSION:

Analysis of survey shows that in Central India, still the traditional protocol is followed and contemporary endodontic practice is still not popular.

Many of practitioners lack advance clinical skills and need to update on newer technological advances.

So, there is urgent need for upgradation of technical knowledge amongst endodontists. More webinars, CDE programs and certified courses should be targeted.

LIMITATIONS OF THIS STUDY: A larger sample size will be required to corroborate our findings.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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