Successful endodontic treatment depends primarily on the protocol carried out in performing root canal treatment. Thus, there are various protocols used by the endodontists in Chennai. The main goal of root canal treatment is to eliminate microorganisms from the root canal system and prevent re-infection. First, access cavity prepared to have a straight-line access to the pulp chambers. Then, root canal treatment is performed accordingly. The pulp chamber is extirpated from the root canal system; then it is eventually shaped with the help of stainless steel and nickel-titanium instruments. This cleaning and shaping process is accomplished with constant sequel of irrigation to remove the inflamed and necrotic tissue, microbes or biofilms, and other debris from the root-canal system. [1] Recently, various techniques and instruments in canal shaping and irrigation are carried out and it is proven to be successful.

The remnants of necrotic tissues within the root canal space may provide nutrition for the surviving bacteria. [2] These remaining tissues re-colonizing the obturated root canal system and eventually cause failure in endodontic treatment. The role of the irrigation protocol thereby plays a peculiar role in the disinfection of the entire root canal system.

The ideal root canal irrigant has been described by Zehnder[3] which is sodium hypochlorite because of its substantivity. [7] Ethylenediaminetetraacetic acid (EDTA) is a chelating agent that is employed as a root canal irrigant. It helps in removing the inorganic component of the smear layer. [8] The other recently introduced irrigant is MTAD, a mixture of Doxycycline, Citric acid, and Tween 80 detergent. This irrigant has shown its ability in removing the components of smear layer. [9]

Sonic, ultrasonic, and subsonic activation have been introduced in an effort to improve the delivery and efficacy of irrigants to the apical third in order to remove the debris and smear layer from the apical third of the root. [10,11] Irrigation contact with the surfaces of the root canals can be enhanced by using systems such as EndoVac. [12] (Discus Dental, Culver City, CA) which is more effective in delivering the irrigant to the working length than conventional endodontic needles in root canals. [13] The purpose of this survey was to ascertain the current protocol in performing root canal treatment followed by endodontic faculty and postgraduate students in Indian dental colleges.

**MATERIALS AND METHODS**

Our survey was based on the survey employed by Gopikrishna et al amongst Endodontists and Post-Graduate student in India on Irrigation protocol in India. A survey 1340 questionnaires were distributed among the practitioners of endodontic in Chennai. 728 forms were completely filled and submitted. A total number of 121 duly filled forms were received back by us. Survey participants were asked about their methods of anesthetizing before endodontic procedure, formulating treatment plan, determination of working length, irrigation device used adjuncts to type of irrigants, instruments used for orifice enlargement, aids for detecting accessory canals and interappointment pain management.
**Sample questionnaire**

1. Method of anaesthetising before the procedure
   a. Topical application + Injection of LA
   b. Injection of LA alone
   c. Pre anaesthetic medication + Topical application + Injection of LA
   d. Other devices

2. Formulating treatment plan based on
   a. Signs & Symptoms + Sensibility test + Radiographic findings
   b. Radiographic findings alone
   c. Clinical examination alone
   d. Option A and vitality testing

3. Isolation methods
   a. Cotton rolls + Suction
   b. Rubber dam
   c. Any other (If yes mention below)

4. Determination of working length
   a. Tactile method
   b. Radiographic confirmation
   c. Apex locator
   d. Others (If yes mention)

5. Irrigation devices used
   a. Conventional needle
   b. Side vented needles
   c. Ultrasonic
   d. Endo activator / endovac
   e. Others (If yes mention)

6. Commonly used irrigants besides saline
   a. CHX + hypo + EDTA
   b. Option A + Hydrogen peroxide
   c. Option A + Maleic acid
   d. Others (If yes mention)

7. Do you heat the hypochlorite
   a. Yes  b. No

8. Instruments for orifice enlargement
   a. Gates
   b. Peeso
   c. Rotary Orifice shapers
   d. No orifice enlargement
9. Types of rotary used and why
   a. Protaper
   b. Protaper next
   c. M two
   d. Hero
   e. Single files

WHY

10. Aids for detecting accessory canals
   a. Bur
   b. Smaller size files
   c. Ultrasonics
   d. Dyes

11. If there is an instrument separation at apical third
   a. Retrieve it
   b. Bypass it
   c. Leave it

12. Inter appointment pain management
   a. Medication
   b. Intra canal medicament
   c. Open dressing
   d. Depulpin

13. Obturation technique
   a. Matched taper cone
   b. Lateral condensation
   c. Vertical obturation
   d. Others (If yes mention)

14. Core build up
   a. Amalgam
   b. LCR
   c. GIC
   d. Ribbond fibres incorporated restoration

15. Commonly given post endodontic restoration for structurally compromised posterior teeth
   a. Pre fabricated post core and crown
   b. Cast Post core and crown
   c. Ribbond fibre incorporated core build up alone
   d. FRC post core and crown
   e. Endocrown
Results

A survey of 1340 questionnaires were distributed among the practitioners of endodontic in Chennai. 728 forms were completely filled and submitted. A total number of 121 duly filled forms were received back by us. There were 728 participants, with an overall positive response rate of 54.32%. The main objective of our survey was to ascertain the practitioner trends followed in various Dental Colleges present in Chennai on performing endodontic treatment. The survey participants comprised of postgraduate students and endodontic teaching faculty with varying years of experience.

The respondents of our survey, comprised of 46.97% were endodontists, 53.03% were non-endodontists whom practices 4 to 10 years of experience. First, diagnosis is the most important step, which is carried out prior to any endodontic treatment. Hence, 96% of the endodontists elicit the signs and symptoms, sensitivity test and based on radiographic findings proceed their treatment. 90% of non endodontists also carry out the same criteria before endodontic treatment. Cold test is the most suitable for diagnosis. Next, amongst the entire group 73.8% of endodontists applies topical anesthesia prior to injection of local anesthesia before initiating endodontic procedure to avoid patient’s anxiety towards root canal treatment. Whereas, 72.0% of non-endodontists administers local anesthesia only. 97% of the endodontists uses apex locator and radiographic confirmation for determination of working length. However, non-endodontists only uses radiographic confirmation for this purpose. 97% of the endodontists and non-endodontists use chlorhexidine, sodium hypochlorite and EDTA as their primary irrigant selection. 85% of the endodontists uses side vented needle as adjunct to irrigate the root canal system to avoid flushing of debris beyond the apex, 80% of non-endodontists use conventional needle for irrigation. Around 75% of the endodontists prefer to heat the sodium hypochlorite during root canal treatment but only 5% of non-endodontists heat sodium hypochlorite solution. By heating the sodium hypo chloride, the pulp dissolution capacity and the antimicrobial efficacy increases. 90% of the endodontists use rotary NiTi instrument for pulpal orifice enlargement. However, 80% non-endodontists use gates glidden for pulpal orifice enlargement. 84.8% of the endodontists use smaller size files and ultrasonic tips to locate accessory canals and 80% of non-endodontists use only smaller size files to detect accessory canals.

87.9% of the endodontists gives only intra canal medicaments for inter appointment pain management whereas 75.8% of non-endodontists prescribe medication along with intra canal medicaments. Core build up is done with light cure restoration by the endodontists 82.5% but miracle mix is used around 70% of non-endodontists as it is prior in strength and stability. 72.1% of the endodontists treats structurally compromised posterior tooth with cast post core and crown and 12% of endodontists use endocrown. 80% of non-endodontists only use cast post core and crown.

Table 1: Comparison among endodontists and non-endodontists in performing root canal treatment.
Our survey was based on the survey employed by Gopikrishna
et al amongst endodontists and non-endodontists in India on
Irrigation protocol in India. The main objective of our survey was
to ascertain the Practitioner trends followed in various Dental
Colleges present in Chennai on performing endodontic treatment.

In an Indian survey, an overwhelming 97% of respondents
indicated that 26-gauge needle was being employed as the
primary irrigation needle for the delivery of endodontic irrigants.
In our survey, 85% of the endodontists uses side vented needle as
adjunct to irrigate the root canal system, 80% of non-endodontists
use conventional needle for irrigation.

The American survey I (2001) revealed that 51% of practicing
endodontists removed the smear layer before obturation of the
root canal system, [14] while the American survey II (2012)
revealed that 77% of endodontists removed the smear layer. [15]
In our survey, 80% of our respondents claim to remove the smear
layer during endodontic procedure.

In the north American survey, there is evidence that, compared
with traditional needle irrigation and some other systems, the
EndoVac system lowers the risks associated with irrigation close
to the apical foramen considerably [16]. Moreover, the reversed
flow of irrigants may be good apical cleaning at the 1-mm level and
a strong antibacterial effect when hypochlorite is used, as shown
by recent studies [17,18]. Flexiglide needle for irrigation also easily
follows curved canals. In our study, 85% of the endodontists uses
side vented needle as adjunct to irrigate the root canal system.

CONCLUSION

Based on this survey both the groups' gives almost the same
importance for the diagnosis and the treatment plan before
proceeding into endodontic procedures. The findings of this survey
are that the majority endodontists in Chennai prefer side
vented syringe for irrigation. Furthermore, both practitioners uses
same irrigants in their practices. This shows that the irrigants
plays a peculiar role in a successful root canal treatment.

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