



OPINION AMONG INTERN STUDENTS TOWARDS USING OF ROTARY INSTRUMENTS AND HAND INSTRUMENTS FOR ROOT CANAL TREATMENT

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Abstract:

Introduction: the purpose of present study is to assess the attitude of Intern students towards use Rotary instruments and hand instruments for Root Canal treatment. **Materials and Method:** It was a cross-sectional questionnaire study conducted in the Indira Gandhi Government Dental Colleges, Jammu City. A total of 3 dental colleges were visited and face to face interview schedule was conducted. Questionnaire consists of demographic details of Dental professionals. Information regarding the age, gender OPD details and number of root canal treatment done per week by intern students was obtained. Use of Rotary and hand instruments by Intern students was inquired. Years of experience with Rotary instruments, Procedural problems with Rotary instruments faced by Intern student and reasons for not using the Rotary instruments if any was also recorded. **Results:** 102 (33%) of the total study samples were using Rotary instruments for root canal treatment and 100 (32%) using both rotary and hand instruments for Root canal Treatment. Students who are using rotary instruments are facing the procedural problem of File breakage {70 (36%)}. And those Intern student using hand instruments are facing the problem of Ledge formation {82(40%)}. **Conclusion:** The main procedural failure of the Rotary instruments in Root Canal Treatment, faced by Intern student was File breakage and with hand instrument is Ledge formation. Lack of expertise is the main reason which restricts Intern student from using rotary instruments.

Key words: *Hand instruments, Rotary Instruments, Root canal treatment,*

INTRODUCTION

The primary goal of endodontic treatment is to eradicate micro-organisms from the root canal

system; to prevent further reinfection, by the procedure of cleaning and shaping of root canal system with copious irrigation¹. Cleaning and shaping of the root canal system is one of the

main goals in endodontics which can be carried out using different systems and techniques². To reach this aim, stainless steel hand instruments have been traditionally applied. Lack of flexibility of instruments causes errors during endodontic treatments³ which lead to decreased success rate⁴. After introducing rotary nickel-titanium (NiTi), their usage became popular⁵. NiTi instruments super elasticity along with their advanced design made them favorable for effective and safe instrumentation of narrow and curved root canals using low torque handpieces³. The ability of some NiTi rotary systems in maintaining the root canal curvature has been studied⁶⁻¹¹. Fracture susceptibility is considered as a major disadvantage of these instruments². In the past decade, many innovative concepts, techniques and instruments have been introduced for the most acceptable cleaning, shaping and obturation. In the guidelines have been formulated reflecting an increased interest in quality assurance in endodontic procedures. Although the viewpoint of academic teaching and endodontic societies is clear, little information is available regarding the attitude of dental practitioners towards these standards, and on how far the changes in endodontic technique have been incorporated into daily practice.¹² Epidemiological studies suggest that the failure rate is distinctly higher for teeth treated by dentists who are not endodontic specialists¹³⁻¹⁴. However, very few data are available about the general dental practitioners approach to Rotary instruments as compared to hand instruments¹⁵. Therefore, the purpose of present study is to assess the opinion of Intern student towards use Rotary instruments and hand instruments for Root Canal treatment.

MATERIALS AND MATHOD

It was a cross-sectional questionnaire study conducted in the Indira Gandhi Government Dental Colleges, Jammu. Ethical approval was obtained from Ethical committee of Indira Gandhi Government Dental Colleges, Jammu. The study was conducted in 1 months (December 2017). Written informed consent was also obtained from every Intern students. Every Intern students who are doing root canal treatment in the

college or in some private clinic present on the day of survey and gave the informed consent, was included in the study. A total of 3 dental colleges were visited and face to face interview schedule was conducted. The questionnaire was pretested in a pilot survey comprising of 25 participants. The Proforma was tested for reproducibility by test-retest. Reliability of the Questionnaire was assessed by using Test-Retest and the values of measured Kappa (k) = 0.81 Weighted Kappa (k_w) = 0.84. Internal consistency of questionnaires was assessed by applying Chronbachs-Alpha (α) and the value of α = 0.76 was measured. Questionnaire consists of demographic details of intern students. Information regarding the age, gender, OPD details and number of root canal treatment done per week by Intern student was obtained. Use of Rotary and hand instruments by Intern student was inquired. Years of experience with Rotary instruments, Procedural problems with Rotary instruments faced by Intern student and reasons for not using the Rotary instruments if any was also recorded. The data collected was entered in Microsoft Excel 2007 and Descriptive statistics was applied.

RESULTS

Table 1 shows that majority of Intern student were having age group of 24-27 years 208 (67%) of age. Most of study samples were male 192 (62%). Only 87 (28%) of Intern student have OPD more than 20 patients per week with only 52 (16%) of Intern student doing more than 10 root canal treatments per week as shown by table 2. In relation to table 3 only 102 (33%) of the total study samples were using Rotary instruments for root canal treatment and 100 (32%) using both rotary and hand instruments for Root canal Treatment. Table 4 shows that, of the total Intern student using rotary instruments most of them 102 (50%) were using it for past 1 to 2 years. While those using hand instruments most of them 104 (50%) were using for more than 4 years. Most of the dentists who are using rotary instruments are facing the procedural problem of File breakage {70 (36%)}. And those Intern student using hand instruments are facing the problem of Ledge formation {82(40%)}. lack of expertise {40 (37%)} with Rotary instruments is the main

reasons of not using the Rotary instruments by the Intern students shown in table 6.

Table 1: Age and Gender of the study samples.

		N (NUMBER)	% (PERCENTAGE)
AGE GROUP	20-23 years	57	18%
	24-27 years	208	67%
	More than 27years	44	15%
	Total	309	100%
GENDER	Male	192	62%
	Female	117	38%
	Total	309	100%

Table 2: Years of professional experience, OPD details of Intern student

		N (NUMBER)	% (PERCENTAGE)
NUMBER OF OPD PATIENTS PER WEEK	1-10	123	40%
	11-20	99	32%
	MORE THAN 20	87	28%
	Total	309	100%
NUMBER OF ROOT CANAL TREATMENTS DONE PER WEEK	1-05	156	51%
	06-10	101	33%
	MORE THAN 10	52	16%
	Total	309	100%

Table 3: Use of Rotary and hand endodontic instruments in Root Canal Treatment by Intern students

Type of Instrument	(N) Number	(%) Percentage
Rotary Instruments	102	33%
Hand Instrument	107	35 %
Both Rotary and Hand Instruments	100	32 %
Total	309	100 %

Table 4: Experience with Rotary and hand instruments in Intern students.

Period	Rotary Instruments		Hand Instruments	
	N	%	N	%
1-2months	102	50 %	45	22 %
3-4 months	48	24 %	58	28 %
More than 4 months	52	26 %	104	50 %
Total	202	100 %	207	100 %

Table 5: Procedural problems faced by Intern studentwith rotary instruments and hand instruments.

Period	Rotary Instruments		Hand Instruments	
	N	%	N	%
Ledging of the canal	29	14 %	82	40 %
Transportation of the canal terminus	19	9 %	23	11 %
Strip perforation of a curved canal	13	6%	12	6%
Straightening of curved canals	11	5 %	17	8 %
Excessive dentine removal	28	14 %	22	11 %
Binding of the file in the canal	32	16%	21	10 %
File fracture	70	36%	23	11 %
File overing	0	0%	7	3 %
Total	202	100 %	207	100 %

Table 6: Reasons of not using the Rotary instruments by Intern student.

Reasons	N (Number)	% (Percentage)
Lack of expertise with Rotary instruments.	40	37 %
Lack of finance to purchase Rotary instrument kit.	11	10 %
Patient fear from rotary instrument.	7	7%
Hiring of Specialist by Dental Professionals.	17	16 %
Failure of cases in the past with Rotary instruments.	32	30 %
Total	107	100%

DISCUSSION:

Present study is undertaken to assess the attitude of Intern studenttowards the use of Rotary instruments in Root Canal Treatment. In previous studies assessment of use of rotary instrument was done but very less number of studies had done comparison of hand and Rotary instruments in Root canal Instruments.In the present study 33% of Intern studentuse rotary instruments and 35% of them are using hand instruments and 32% of respondents are using both types of instruments. for RCT (Root canal Treatment) as compared to study by Gul Celik Unal et al¹⁷ to assess the information on the materials and methods employed in root canal treatment by dentists in Turkey in which 41.2% of Intern studentwere using Rotary instruments. This may be due to the fact that in this study 96% of the study samples were Intern student therefore due

to lack of specialized training and therefore less use of Rotary instruments.In the study by Ashwini Gaikwad et al¹⁸, 71. 2%of Intern studentare using hand instruments and 12.6% were using rotary instruments while 16% of them are using both.In a study by Parashos P et al²in an Australian studydetermined that 22% of general dentists and 64% of endodontists using rotary instruments, approximately 70% of general dentists and almost 83% of endodontists in a study performed in UK^{2, 19}as well as 77% of the Swedish general dentists who participated in an endodontics educational program²⁰ have mentioned that they used NiTi rotary instruments²¹. In the present study 50 % of Intern studenthad 1 to 2 months of experience with rotary instruments and more than 4 months of experience with hand instruments in contrast to study by Mozayeni et al.¹⁵in which 39% of Intern student had more than 3 months of experience

with rotary instruments. In the present study main procedural problem that a interns faced with rotary instrument was breakage of file {70(36%)} while with hand instruments is Ledge formation {82(40%)}. Same results were seen in study by Mohammad Ali Mozayeni et al¹⁵ in which file fracture was faced by 88.5% of Intern student using rotary instruments and ledge formation with hand instruments.

CONCLUSION

From above, It is been concluded that Intern student in Lucknow are using rotary instruments and combination of hand and Rotary instruments. The main procedural failure of the Rotary instruments in Root Canal Treatment, faced by Intern student was File breakage and with hand instrument is Ledge formation. Lack of expertise is the main reason which restricts Intern student from using rotary instruments. This shows that more and more program should be organized for them to improve their compliance.

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