

# International Journal of Research in Health and Allied Sciences

Journal home page: [www.ijrhas.com](http://www.ijrhas.com)

Official Publication of "Society for Scientific Research and Studies" [Regd.]

ISSN: 2455-7803

Index Copernicus value [ICV] = 68.10;

## ORIGINAL RESEARCH

### Assessment of post-operative pain following single sitting root canal treatment- A clinical study

Prachi Singh<sup>1</sup>, Bhavika<sup>2</sup>, K.Sowmya<sup>3</sup>, M.Vasanth<sup>4</sup>, Lagushetty Sravan<sup>5</sup>, K.R.Amarnath Reddy<sup>6</sup>

<sup>1</sup>Assistant professor, Department of Dentistry, Rajarshi Dashrat Autonomous State Medical College Ayodhya;

<sup>2</sup>BDS Intern, I.T.S. Dental College, Muradnagar, Ghaziabad, U.P.,

<sup>3,4</sup>Post graduate student of 3<sup>rd</sup> year, Department of Conservative Dentistry and Endodontics, Meghna Institute of Dental Sciences, Telangana;

<sup>5</sup>BDS final year student, Manthena Narayana Raju Dental College & Hospital, Sangareddy, Telangana;

<sup>6</sup>MDS, Dept. of Conservative Dentistry and Endodontics, MNR Dental College and Hospital, Telangana

#### ABSTRACT:

**Background:** The present study was conducted to assess post operative pain in single sitting root canal treatment. **Materials & Methods:** The present study was conducted on 60 single rooted teeth. Teeth were treated in single visit the root canal therapy. Biomechanical preparation was done followed by obturation by gutta percha. Post operative pain was evaluated using VAS scale after 6 hours, 12 hours, 24 hours and 48 hours. **Results:** Out of 45 patients, males were 25 and females were 20. The mean VAS after 6 hours was 8.2, at 12 hours was 5.4, at 24 hours was 3.6 and at 48 hours was 2.1. The difference was significant ( $P < 0.05$ ). **Conclusion:** Authors found that there was significant reduction in post operative pain following single sitting root canal treatment.

**Key words:** Root canal treatment, Single sitting, VAS.

Received: 8 March, 2020

Accepted: 26 April, 2020

**Corresponding Author:** Dr. Prachi Singh, Assistant professor, Department of Dentistry, Rajarshi Dashrat Autonomous State Medical College Ayodhya;

**This article may be cited as:** Singh P, Bhavika, Sowmya K, Vasanth M, Sravan L, Reddy KA. Assessment of post-operative pain following single sitting root canal treatment- A clinical study. Int J Res Health Allied Sci 2020; 6(4):39-41.

#### INTRODUCTION

The goal of root canal therapy is thorough disinfection and obturation of the root canal system in all its dimensions.<sup>1</sup> Root canal treatment can be done using two approaches; first, completing the treatment in multiple-visits where residual bacteria are eliminated or prevented from repopulating the root canal system by introducing an intracanal medicament during the root canal treatment, and second, removing the remaining bacteria by entombing them in a complete three-dimensional obturation, completing the treatment in one visit.<sup>2,3</sup> The reasons for postoperative pain can be many including chemical, mechanical, or microbial injuries to the periapical tissues that result in acute inflammation. No significant difference in postoperative pain has been

found when one-visit RCT was compared with two-visit treatment.<sup>4</sup>

Mechanical factors, including over instrumentation or extrusion of root-filling materials, have been associated to the presence of postoperative pain, suggesting that root canal instrumentation and obturation techniques may influence postoperative pain. In fact, several studies have found correlation between the root canal instrumentation technique and postoperative pain. Nevertheless, no study has analyzed the influence of the obturation technique in postoperative pain.<sup>5</sup>

Single-visit RCTs take less time, cost-effective, prevent RC contamination and/or bacterial regrowth, less stressful to patient regarding anesthesia, and instrumentation related to treatment. Other problems are

leakage between visits and loss of temporary seal. Its main disadvantage is that there is no possibility for checks, such as culture and reevaluation of tissue response after treatment procedure.<sup>6</sup> The present study was conducted to assess post operative pain in single sitting root canal treatment.

**MATERIALS & METHODS**

The present study was conducted in the department of Endodontics. It comprised of 60 single rooted teeth in 45 patients of both genders. All were informed regarding the study and written consent was obtained. Only maxillary central incisors were selected for this study. Both vital and non-vital teeth were included in the study.

General information such as name, age, gender etc was noted. Teeth were treated in single visit the root canal therapy. The common procedure was local anaesthesia

infiltration followed by rubber dam application, caries excavation and access cavity preparation. Canal patency was checked with a size 15 K file. Then orifice openers taper 0.12 and 0.10 were used for enlarging the coronal and middle third of the canal. They were used at speed of 350 rpm with a slow gentle in and out movement. RC-Prep was used as a lubricant and 2.5% NaOCl, saline as irrigants. Then the working length was determined with K-file using apex locator and confirmed by a periapical radiograph. Biomechanical preparation was done followed by obturation by gutta percha. Post operative pain was evaluated using VAS scale after 6 hours, 12 hours, 24 hours and 48 hours. Results thus obtained were subjected to statistical analysis using chi- square test. P value less than 0.05 was considered significant.

**RESULTS**

**Table I Distribution of patients**

Total- 45		
Gender	Males	Females
Number	25	20

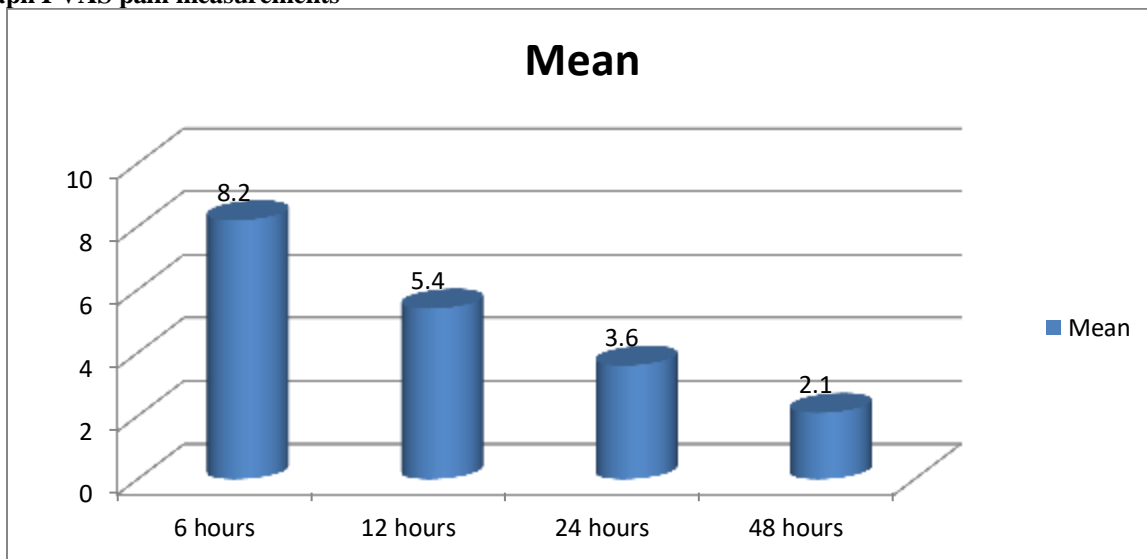
Table I shows that out of 45 patients, males were 25 and females were 20.

**Table II VAS pain measurements**

Interval	Mean	P value
6 hours	8.2	0.01
12 hours	5.4	
24 hours	3.6	
48 hours	2.1	

Table II, graph I shows that mean VAS after 6 hours was 8.2, at 12 hours was 5.4, at 24 hours was 3.6 and at 48 hours was 2.1. The difference was significant (P< 0.05).

**Graph I VAS pain measurements**



**DISCUSSION**

Endodontists favor to carry out RCT of vital teeth in a single visit. There is a dilemma and controversy whether to carry single- or multiple-visit therapy in pulpal necrosis cases with or without apical periodontitis.<sup>7</sup> The primary reason in such cases is that bacteria spread into dentinal tubules, lateral canals, and apical deltas, thus causing difficulties in their elimination by chemomechanical means of preparation. It is believed by many endodontists that in such cases, intracanal medicament should be placed for longer periods as to lessen or eliminate bacteria resulting in better healing.<sup>8</sup> Single visit root canal treatment has become a common practice and offers several advantages both for patient as well as dentist. These are reduced number of visits, increased patient acceptance, lesser postoperative flare-ups, reduced chair-side time, and practice management considerations. But simultaneously, single visit procedure removes few controls available in the multivisit treatment like culturing.<sup>9</sup> Also, it precludes the opportunity to place intracanal medicament such as calcium hydroxide. However, the need to place calcium hydroxide remains questionable since it has been shown that calcium hydroxide fails to consistently produce sterile root canals and even allows regrowth in some cases. Thus root canal treatment with an inter-appointment calcium hydroxide dressing gives no guarantee of healing in all cases and therefore its use does not appear to be practical in all the cases.<sup>10</sup> The present study was conducted to assess post operative pain in single sitting root canal treatment. In present study, out of 45 patients, males were 25 and females were 20. We found that the mean VAS after 6 hours was 8.2, at 12 hours was 5.4, at 24 hours was 3.6 and at 48 hours was 2.1. Patil et al<sup>11</sup> in their study thirty three patients were allotted to group A where endodontic treatment was completed in single visit while 33 patients were allotted to group B where endodontic treatment was completed in two visits. One patient dropped-out from Group A. Hence in Group A, 32 patients were analysed while in Group B, 33 patients were analysed. After 6 hours, 12 hours and 24 hours of obturation, pain was significantly higher in Group B as compared to Group A. However, there was no significant difference in the pain experienced by the patients 48 hours after treatment in both the groups. Ezpeleta et al<sup>12</sup> investigate and compare postoperative pain after one-visit root canal treatment (RCT) on teeth with vital pulps using three different obturation techniques. Two hundred and four patients (105 men and 99 women) aged 12 to 77 years were randomly assigned into three treatments groups: cold lateral compaction of gutta-percha (LC), Thermafil technique (TT), and Backfill - Thermafil obturation

technique (BT). Postoperative pain was recorded on a visual analogue scale (VAS) of 0 - 10 after 2 and 6 hours, and 1, 2, 3, 4, 5, 6 and 7 days. Data were statistically analyzed using multivariate logistic regression analysis. In the total sample, 87% of patients experienced discomfort or pain in some moment between RCT and the seventh day. The discomfort experienced was weak, light, moderate and intense in 6%, 44%, 20% and 6% of the cases, respectively. Mean pain levels were  $0.4 \pm 0.4$ ,  $0.4 \pm 0.3$ , and  $1.4 \pm 0.7$  in LC, BT, and TT groups, respectively. Patients of TT group experienced a significantly higher mean pain level compared to other two groups ( $p < 0.0001$ ). In TT group, all patients felt some level of pain at six hours after RCT.

## CONCLUSION

Authors found that there was significant reduction in post operative pain following single sitting root canal treatment.

## REFERENCES

1. Vieyra JP, Acosta FO, Osuna SK. Incidence of flare-Ups and apical healing after single-visit or two visits treatment of teeth with necrotic pulp and apical periodontitis after a two-year control period. A randomized clinical trial. *J Dent Oral Health* 2018;4:111.
2. Sharma S, Mahajan N, Kotwal B, Gupta R, Kharyal S, Tomar D. Incidence of post-operative pain in single versus multiple visit root canal treatment of vital and non-vital single rooted teeth. *Int J Sci Stud* 2017;5:145-8.
3. Schwendicke F, Göstemeyer G. Single-visit or multiple-visit root canal treatment: Systematic review, meta-analysis and trial sequential analysis. *BMJ Open* 2017;7:e013115.
4. Soltanoff W, Montclair NJ. A comparative study of the single visit and the multiple - Visit endodontic procedure. *J Endod* 1978;4:278-81.
5. Keskin C, Demiryurek EO, Ozyurek T. Postoperative Pain after Single-Versus-Multiple Visit Root Canal Treatment in Teeth with Vital or Non-Vital Pulp in a Turkish Population. *Asian J Sci Res* 2015;8:413-20.
6. Brignardello-Petersen R. Very similar long-term complication rate and short-term incidence rate when comparing single-visit and multiple-visit endodontic treatments. *J Am Dent Assoc* 2017;148:e70.
7. Mulhern JM, Patterson SS, Newton CW, Ringel AM. Incidence of postoperative pain after one-appointment endodontic treatment of asymptomatic pulpal necrosis in single-rooted teeth. *J Endod* 1982;8:370-5.
8. Eleazer PD, Eleazer KR. Flare-up rate in pulpally necrotic molars in one-visit versus two-visit endodontic treatment. *J Endod* 1998;24:614-6.
9. Soares JA, César CA. Clinic and radiographic evaluation of one-appointment root canal therapy in teeth with chronic periapical lesions. *Pesqui Odontol Bras* 2001;15:138-144.
10. Singh S, Garg A. Incidence of postoperative pain after single visit and multiple visit root canal treatment: A randomized controlled trial. *J Cons Dent*. 2012;15(4):323-27.
11. Patil AA, Joshi SB, Bhagwat SV, Patil SA. Incidence of postoperative pain after single visit and two visit root canal therapy: a randomized controlled trial. *Journal of clinical and diagnostic research: JCDR*. 2016 May;10(5):ZC09.
12. Ezpeleta LO, García CG, Cosano LC, González JM, Frias JL, Segura-Egea JJ. Postoperative pain after one-visit root-canal treatment on teeth with vital pulps: comparison of three different obturation techniques. *Medicina oral, patología oral y cirugía bucal*. Ed. inglesa. 2012;17(4):12.