



“EVALUATION OF THE INCIDENCE OF ENDODONTIC FLARE UPS AND THEIR ASSOCIATED FACTORS- A PROSPECTIVE –OBSERVATIONAL STUDY.”

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ABSTRACT

The purpose of this prospective observational study was to evaluate the incidence of endodontic flare-ups and the various factors associated with these flare ups. The study was carried out in dept. of cons & endo among 250 patients including both male and females to find out to various reasons for these occurrences of pain and swelling. The study included a questionnaire based survey where the dentists and patients who had undergone root canal therapy were asked to record about the amount of pain perceived by them.

Results- In this study it was observed that the incidence of flare ups among the study subjects was 18.8%. Various factors that were observed for the incidences of flare ups reveals that age, previous history of pain. Pulp vitality, non significant value, where as it was recorded that periapical radiolucency showed a significant value.

Conclusion- That a sudden and unknown response of the hosts towards endodontic therapy can be avoided at through proper knowledge and observance towards endodontic therapy.

KEYWORDS :

INTRODUCTION-

Dental pain is defined as unpleasant, sensory, emotional experience that can lead to damage of tissue which may be actual or potential. Most of the studies have suggested that root canal treatment is one of the most painful dental treatments. Studies have also reported post operative pain after RCT is very common in daily practice. Pain usually ranges from mild to severe after endodontic treatment. The duration of pain can vary from days to weeks which can cause discomfort to patient.

Endodontic flare ups accounts for the amount of pain vary from hours to days which may lead to serious issue and may required emergency treatment in some cases. An inter-appointment flare-up is usually disturbing for both patient as well as dentist. Patient usually gets upset by the severe toothaches which cause the patient to call the dentist or return to the dental office in need of an unscheduled appointment. It is important to know the management and prevention of these unscheduled appointments.

Patient must come to the dental clinic generally in case of severe toothache for an unscheduled visit. At the time of visit, problem must be resolved by incision in case of drainage, debridement of canal, access opening of tooth, certain analgesics and medications. After endodontic t/t, the pain usually frustrates both practitioners as well as patients. With proper therapy of the root canal, proper technique with asepsis also, pain can range from mild to moderate.

Endodontic flare ups are usually described as acute exacerbation of pulp or peri-radicular pathosis after RCT initiation or continuation. Some of the features include emergence of pain/swelling after RCT, pain/swelling in case of non-intentional therapies, lack of active participation of dentist, short of precise t/t.⁶

It has been assumed that flare ups is etiological phenomenon where mechanical factors including over instrumentation, preparation beyond apical phenomenon, pushing infected pulp into peri-apical area, chemical factors like intra canal medicaments, sealants, microbiological factors may lead its contribution of appearance.

Many Researches has been proposed to know the correlation of flare up. Some of the factors were found, these include the number of appointments to complete, the treatment, host factors determining age, gender, diagnosis. Many factors like diagnosis of peri-radicular retreatment of root canal, maintaining the apical patency and presence of irritants in root. Many researchers have suggested treatment modalities including post-operative medication, duration, and level of filing of root canal.²

A flare up may result as apical periodontitis secondary to the treatment; and therefore, when the tooth involved in endodontic therapy, it becomes sensitive to percussion during the course of treatment. This is

often particularly true when the symptom wasn't present before treatment. Secondary apical periodontitis could also be extremely uncomfortable and cause a throbbing, gnawing, and/or pounding pain. The explanation for secondary apical periodontitis is most often over-instrumentation, but the condition may occur as a result of overmedication (too caustic or an excessive amount of intra-canal medicament) or forcing debris into the periapical tissues.¹²

For the same reason a controlled as well as effective anti-microbial regimen is advised in cases of symptomatic irreversible pulpitis with apical periodontitis in order to remove the bacteria as well as to reduce the microbial load, which may lead to increase in peri-apical inflammation. Various anti microbial and dentin chelators have been proposed for debridement and defining the root canal along with these substances, NaOCl and CHX are standard intra-canal irrigants that produce effective anti-bacterial activity. It is observed in various studies that pain experience by the patients and the percentage of cases reported with pain were higher when the root canals were irrigated with normal saline, on the contrary 5.25% NaOCl and 3% H₂O₂ solutions are more effective. Even though NaOCl is considered to be gold standard among root canal irrigants yet its toxicity can be taken into consideration if it percolates beneath and irritates the periapical tissues, therefore root canal preparation has to be performed with utmost care in order to avoid any chances of post operative pain or flare-ups.⁶

This descriptive prospective study was a questionnaire survey which aimed to evaluate the incidence of those flare-ups in patients who had undergone endodontic therapy in the Dept. of Cons and Endo, TMDRC, Moradabad and to assess its relation with age, gender and pulp vitality and periapical radiolucency.

METHODOLOGY-

Dental record of 250 patients within the age group of 16-60 years reported to the department during the period of 2018- 2020 having chief complain of pain, discoloration, sensitivity in carious teeth were included after taking complete Case History & were analysed. The root canal procedures were carried out by different dentists including post graduate students, interns and general practitioners.

The study type was carefully explained to each patient and consent was taken before active participation.

Data was collected from each patient who is undergoing the root canal treatment procedure through a questionnaire which included the patients demographic details, chief complain, the patients perception of pain, the medical condition (if any), type of medication, diagnosis and no. of visits.

Information was also collected from the operator regarding the root canal therapy technique which will be performed during the procedure.

The root canal procedure for the following patients included conventional access cavity preparation, followed by working length determination using #no.6,8,10 k files. Further the shaping and cleaning procedures involving the used of different preparation techniques where it was decided by the personnel whether to use any intra- canal medication or provide intra- oral medications to the patients depending upon the various condition of the tooth as well as patient.

The patients were given verbal instructions after each appointment. The treated tooth is sensitive especially when chewing or on mastication after endodontic therapy. This is usually normal and can be reduced by analgesics.

Second instruction was given “if you experience any spontaneous pain, & swelling, please call the doctor”.

You can contact the dentist upon any doubt or question.

Third instruction was, in case of severe pain or swelling, emergency treatment should be performed with the help of re-instrumentation of canal, surgical debridement of canal.

Criteria For Evaluating An Endodontic Flare Up :

Presence of pain in relation to the treated tooth

Intra-oral or extra-oral swelling

Presence of swelling with pain;

OBSERVATIONS -

Table 1: Incidence Of Flare Up Among Study Subjects.

Flare Up	Number	Percentage
Absent	203	81.2 %
Present	47	18.8 %
Total	250	100.0 %

Table 2: Incidence Of Flare Up According To Age

Age Groups (Year)	Total Number of Patients	FLARE UP	
		Absent N(%)	Present N(%)
14-19 year	54(21.6%)	47(18.8%)	7(2.8%)
20-29 year	92(36.8%)	72(28.8%)	20(8.0%)
30-39 year	46(18.4%)	39(15.6%)	7(2.8%)
40-49 year	44(17.6%)	33(13.2%)	11(4.4%)
50 Year& Above	14(5.6%)	12(4.8%)	2(0.8%)
Total	203(81.2%)	47(18.8%)	250(100.0%)
χ^2 Value	3.407		
Significance 'P' Value	.492(NS)		

Table 3: Incidence Of Flare Up Acc. To Gender

Gender	Total Number of Patients	FLARE UP	
		Absent N(%)	Present N(%)
Male	152(60.8%)	128(51.2%)	18(7.2%)
Female	98(39.2%)	75(30.0%)	29(11.6%)
Total	250(100.0%)	203(81.2%)	47(18.8%)
χ^2 Value	9.63		
Significance 'P' Value	.002(Highly Significant)		

Table 4: Incidence Of Flare Up According To Pulp Vitality

Pulp Vitality	Total Number of Patients	FLARE UP	
		Absent N(%)	Present N(%)
Negative	124(49.6%)	103(41.2%)	21(8.4%)
Positive	126(50.4%)	100(40.0%)	26(10.4%)
Total	250(100.0%)	203(81.2%)	47(18.8%)
χ^2 Value	0.560		
Significance 'P' Value	.454(NS)		

Table 5: Incidence Of Flare Up According To Periapical Radiolucency.

Periapical Radiolucency	Total Number of Patients	FLARE UP	
		Absent N (%)	Present N (%)
NO	210(84.0%)	180(72.0%)	30(12.0%)
YES	40(16.0%)	23(9.2%)	17(6.8%)
Total	250(100.0%)	203(81.2%)	47(18.8%)

χ^2 Value	17.521
Significance 'P' Value	.001(HS)

DISCUSSION-

Through multi-visit treatment there is considerable reduction in the bacterial count and their toxins before the canals are sealed by GP. This reduction in bacterial count is achieved by using intra canal medications; which proves to be preferential over single visit root canal therapy. Nevertheless for infected teeth, multiple visits RCT is a safer option.

Though a dentist performs RCT with utmost care and asepsis, yet some individuals feel discomfort in the forms of pain or swelling of flare ups post endodontic therapy.

It's quiet annoying to the patient as well as the dentist to plan for an unscheduled visit at that moment. Also, PEP after endodontic therapy is considered as failure. According to the various studies published previously, the incidence of PEP ranges from 1.4% to 16% and may varies up to 50%. This variation is mostly observed due to varied definitions of PEP and different variables related to it.

INCIDENCE OF FLARE UPS-

We found Out of 250 patients, 152(60.8%) were male and 98(39.2%) were female. Incidence of flare up was 18.8%. Out of 250 patients, flare up was present among 47(18.8%) and it was not seen in 203(81.2%).

GENDER-

It was found among 250 patients, 152(60.8%) were male and 98(39.2%) were female. Incidence of flare up was seen significantly higher among female patients as compare to male. It was 29(11.6%) among female and 18(7.2%) among male patients. An arithmetical relevant difference was observed for incidence of Flare Up according to gender. (P=0.002)

When compared with males, females showed a higher rate of PEP. Most of the authors reported that women are more vulnerable to PEP than men after endodontic treatment.

This can be interpreted by the biological variation between male and females as there is fluctuation in the level of hormones in relation to change in the level of non-adrenaline and serotonin.

AGE GROUPS-

Incidence of flare up was found more among 20-29 year old patients. i.e. 20(8.0%) followed by 11(4.4%) in 40-49 year old patients. 7(2.8%) flare up was seen among 14-19 year old patients. A non-remarkable difference or association found in Incidence of Flare Up according to age. (P=0.492).

PULPVITALITY

In our study we observed that the incidence of flare up was higher among patients with positive pulp vitality. It was 26(10.4%) among patients with negative pulp vitality and 21(8.4%) among patients with positive pulp vitality. There was statistically not significant difference found in incidence of Flare Up according to Pulp Vitality. (P=0.454).

Wide variations exist in the literature concerning the incidence of post endodontic pain due to the vitality of teeth. Evidence of literature of the effect of vitality of the pulp on incidence of post endodontic pain remains inconclusive. The gradual increase in pain for vital tooth could be due to the insult to tissues present in the periapical region during root canal therapy which leads to rise in the levels of prostaglandins, serotonin, histamines and bradykinins secretion.^{55, 56}

Non vital teeth are more prone to post endodontic pain due to the presence of large no. of microbes in apical third canal and presence of periapical lesion.

PERI-APICAL RADIOLUCENCY-

Out of 250 patients, only 40(16.0%) had periapical radiolucency. Incidence of flare up was significantly less among patients with periapical radiolucency. It was 17(6.8%) among patients with periapical radiolucency and 30(12.0%) among patients with no periapical radiolucency.

There was statistically highly significant difference found in Incidence of Flare Up according to Periapical radiolucency. (P=0.001)

CONCLUSION-

In this study it was observed that the incidence of flare ups among the study subjects was 18.8%.

Among the factors that were evaluated with these flare ups, age and pulp vitality showed no significant value whereas the association with gender shows a significant results.

That a sudden and unknown response of the hosts towards endodontic therapy can be avoided at through proper knowledge and observance towards endodontic therapy.

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