VOLUME-8, ISSUE-8, AUGUST-2019 • PRINT ISSN No. 2277 - 8160

Original Research Paper

Medical Science

COMPARISON BETWEEN PRESCRIPTION OF REGULAR OR ON-DEMAND IBUPROFEN ON POSTOPERATIVE PAIN AFTER SINGLE-VISIT ROOT CANAL TREATMENT OF MANDIBULAR 1ST MOLARS WITH IRREVERSIBLE PULPITIS

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KEYWORDS :

Postoperative pain is a unwanted and unavoidable though a common sensation after root canal treatment.[1] It is defined noxious nervous stimulation perceived as pain and is present in 25%–40% of all endodontically treated patients including those with vital and nonvital pulp. The reasons of postoperative pain are mechanical, chemical, and/or microbiological insults to the periradicular tissue.[2]Postendodontic pain may be caused by the apical pushing of infected pulpal debris during chemomechanical instrumentation, thought to generate an acute inflammatory response . On the basis of a recently published systematic review, the prevalence of pain after root canal treatment has been reported to be between 3% and 58% of patients. This is a huge range might have originated due to difference in methodologies like inclusion criteria's, intracanal medicaments, gender, age and number of appointments, in these studies. Traditionally multiple visits of the patients were needed to do access opening and then to clean root canals chemomechanically with placing of the intracanal medicament between the visits and then finally obturating it. These all steps were done with a rationale of reducing the load of the microorganisms and their byproducts. For years this was well accepted to be a safer therapy. But in the recent years it is found that there is no significant difference in treatment outcomes when multiple visit and single visit endodontics were compared[3]. Many types of Nonsteroidal anti-inflammatory drugs (NSAIDs) have been used such as ibuprofen, ketorolac, and piroxicam as common medications for postendodontic pain management. Several investigations in the medical field have confirmed the benefits of prescribing analgesics on a regular basis compared with the on-demand use of this medication. The paper VAS has a line of 10 cm length starting from 0 cm where each centimeter represents next level in pain intensity. '0' mark represents no pain and '10' mark represents worst pain ever felt by the subject. 12 . Since ibuprofen was the most studied NSAIDs in the endodontic literature and its effects were significantly better than placebo in controlling pain 6 hours after postendodontic treatment in the subjects who had undergone orthograde root canal treatment,13 ibuprofen was selected as the test NSAIDs to be evaluated for the current study. In the current study no better pain relief was found with regular prescription of ibuprofen after single visit root canal treatment of mandibular 1st molars with irreversible pulpitis and it should only be prescribed after ruling out all possible side effects[4].

AIM

Comparison between prescription of regular or on-demand ibuprofen on postoperative pain after single-visit root canal treatment of mandibular 1st molars with irreversible pulpitis.

OBJECTIVES

- To evaluate the effect of on-demand prescription of ibuprofen on post operative pain after single visit root canal treatment of mandibular 1st molars with irreversible pulpitis.
- To evaluate the effect of regular prescription of ibuprofen on post operative pain after single visit root canal treatment of mandibular 1st molars with irreversible pulpitis.
- To compare the effect of regular and on-demand prescription of ibuprofen on post operative pain after single visit root canal treatment of mandibular 1st molars with irreversible pulpitis.

METHODOLOGY

Sixty patients (n=60) eligible to participate in this prospective, randomized clinical study were enrolled and divided into two groups of 30 patients each. To randomize them, each patient was assigned a number. The numbers in each group were written on paper, and each one was kept in a separate sealed opaque envelope. Each patient was asked to choose one of the envelopes, and based on the number chosen, the patient was assigned to one of the groups. The patients were given a "rescue bag" that contained a strip of 15 tablets of 400 mg ibuprofen. Patients in group 1 were instructed to use analgesic tablets if they felt pain, whereas the patients in group 2 were instructed to regularly use the analgesic every 6 hours for at least 24 hours. All patients were treated in the postgraduate clinic of the Endodontic Department of Bhojia Dental College Bhud, Baddi. Informed consent of all patients were obtained on a consent form (Annexure-1) after the nature of the procedure and the possible discomforts were explained to them.

Anesthetic with 2% lidocaine 1:1,00,000 adrenaline was used for giving inferior alveolar nerve block before starting the treatment. Access cavity was prepared using a round bur (mani. Japan) and refined using Endo Z bur (Dentsply, USA). Root canal Patency was checked using K-files #10(Mani, Japan). The working length of each root canal was checked using apex locator (J. Morita, USA) and which was confirmed with a radiovisiograph [RVG (Kodak)], Carestream, USA. Crown down technique was used for biomechanical preparation

MATERIALS & METHODOLOGY

mesial and distal canals were prepared upto #30/0.04% K3 (Sybron Endo, USA) and upto # 35/0.04% K3 files (Sybron Endo, USA) respectively with endomotor (x-smart, dentsply, USA). A 2.5% solution of sodium hypochlorite was used as an irrigant between each instrument during root canal preparation. The smear layer was removed by irrigating with Ethylene Diamine Tetraachetic Acid 17% (EDTA) followed by irrigation with normal saline. The root canals were then dried with paper points (HDI CO., Korea)

Obturation was done by using AH plus sealer and # 30,# 35 4% Gutta Percha (GP) for mesial and distal canals respectively, lateral condensation was done with 2% Gutta Percha (GP) using spreaders (#20-40 Mani, Japan). Patients were instructed to complete a structured proforma (Annexure-2) to record VAS scores at 24 and 48 hours after the root canal treatment.

The following criteria was outlined for the patients to rate their pain.

0: No pain 1–3: Mild pain 4–6: Moderate pain 7–9: Severe pain
The structured proforma also recorded the number of analgesic tablets they had taken at end of root canal treatment. The patients were also requested to evaluate the effect of the analgesic medication up to 48 hours after the treatment on the above described proforma as follows:

0: None or mild pain that did not require the analgesic medication 1: Moderate pain that was fairly well controlled with the analgesic medication and did not interfere with sleep or daily activities 2: Unbearable pain that was not controlled with the analgesic medication and interfered with daily activities.

Since the data recorded was on the ordinal scale, non-parameteric tests were applied. The tests used were Mann-Whitney test and Wilcoxon signed rank test. The level of significance was set at a value of 0.05

DISCUSSION

Two groups (group-1 and group-2) each consisting of 30 subjects were made to evaluate the effect of regular or on-demand use of Ibuprofen on the postoperative pain control after single visit root canal treatments of mandibular 1st molars in the current study. The present study revealed that the mean pain score in group-1 was 1.83±1.02 in comparison to 2.30±1.705 in group-2 at 24 hours of the treatment. At 48 hours the mean pain score in group-1 was 0.73±0.944 whereas in group-2 it was1.27±1.856 (table 3). There was statistically nonsignificant difference between the groups at 24 hours (p value; 0.336) and 48 hours (p; 0.325) respectively[5] .The results of the present study show that the prescription of regular or on-demand use of 400 mg ibuprofen had no significant influence on the level of pain reported by patients after single-visit root canal treatment in teeth with irreversible pulpitis for up to 48 hours after treatment since at both time intervals (P > 0.05).
Masoud Parirokh et al[6] found in a randomized clinical trial that pain described by on-demand group and regular prescription group of ibuprofen at 24 hours and 48 hours were similar and no statistical significance was there between the pain scores (P = 0.849) and (P = 0.732) at these time intervals repectively. The results were similar to the results of current study.

Abubakar sheikh et al[7] conducted a study to compare Ibuprofen and celecoxib for controlling post endodontic pain found that the mean preoperative pain score (VAS) in the patients who received ibuprofen was 5.84±1.99 while in the group of patients who received celecoxib was 6.10±2.25. After 4 hours post operatively, the mean visual analog scale (VAS) score in ibuprofen group was 1.66±2.38 and 1.90±2.38 in celecoxib group. They found Both the drugs provided significant relief in pain shown by the reduction in pain score after 4 hours, which was statistically significant within both drug groups (P < 0.001). They concluded Preoperative administration of Ibuprofen and Celecoxib, both provided significant reduction in postoperative pain in our study, however there was no difference between the groups. Their results were consistent with the current study results[8].

In the current study the mean change of pain score from 24 hours to 48 hours in group-1 was 1.1000±.5477 in comparison to 1.0333±.6686 in group-2 (Table 6), which was found to be statically insignificant (p value; 0.698) (Table 7). The P value came out to be insignificant P=.698 (P > .05), which suggests that change in pain was same between the two groups at 24 hours and 48 hours. Because the pain reported by the patients in both groups was not significantly different and most people prefer to use less medication after treatment, it can be assumed that it is not necessary to recommend regular use of medication after single-visit root canal treatment in patients with teeth with irreversible pulpitis[9].

Dose of an analgesic should be properly adjusted to minimize systemic risks and to maximize its effects. The ceiling effect of ibuprofen is reported to be about 400 mg, and increasing the dose of the analgesic was not shown to significantly increase its analgesic efficacy.84 Therefore, in the present study, 400 mg ibuprofen was prescribed for each dose[11]. To check the real amount of postoperative pain felt by patients, in the current study the conventional visual analog scale (VAS) recordings at 24 and 48 hrs were recorded and the response of the patients pain to the analgesics was also recorded additionaly.28,87,88 Hence, in the present study, patients were given a form, and the results showed that only 1.7% of the total 60 patients taking part in the current study reported severe pain that was unbearable and interfered with the patient s daily activities (Table 10) with a significant difference between the 2 groups (P = 0.027) (table 9).

CONCLUSIONS

Statistical analysis was done using non-parameteric tests since the data recorded was on the ordinal scale. The tests used were Mann-Whitney test and wilcoxon signed rank test[10]. The level of significance was set at a value of 0.05.

Within the limitations of the current study following conclusions can be drawn:

1. In group-1 a significant reduction in the mean pain score was observed from 24 hours (1.83±1.020) to 48 hours (0.73±0.944).
2. In group-2 a significant reduction in the mean pain score was observed from 24 hours (2.30±1.705) to 48 hours (1.27±1.856).
3. There was statistically no difference between mean pain score in group-1 and group-2 at 24 and 48 hours.

The lack of a control group may be seen as a shortcoming for the present study. The lack of pain recording and analysis for a period longer than 48 hours may be also seen as a shortcoming for the present study. After all factors were identified and discussed for post-operative pain in teeth with irreversible pulpitis, the current study concluded that the regular prescription of ibuprofen 400 mg had no significant effect on postoperative pain when compared to on-demand use of ibuprofen 400 mg.

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