

Preoperative Ibuprofen and Success Rate of Inferior Alveolar Block in Irreversible Pulpal Inflammation Cases

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ABSTRACT

Background: The inferior dental nerve block (IDNB) is the best method of pain control prior to endodontic treatment. Conventional IDNB is one of the most common technique to get pain control

Aim: To compare effectiveness of premedication with Ibuprofen with placebo to increase the success chances of IDNB in lower molars in subjects with asymptomatic irreversible pulpal infection.

Methodology: Sixty patients were selected and divided in to two groups (group 1 ibuprofen and group 2 placebo). Patients were pre-medicated and the treatment was commenced with IDNB 45 minutes after premedication. The failed patients were managed with alternate methods

Results: The results showed that premedication with ibuprofen gave 16.6 % success rates vs 13.3% of placebo. The mean ages in group 1 were 27.40±4.17 years and 25.73±4.79 years. The practical implication of this study is that ibuprofen can't be used to increase the success chances of IDNB in lower molars before endodontic therapy.

Conclusion: Thus it was concluded that ibuprofen as compared to placebo did not increased the success chances of IDNB in lower molars in subjects with asymptomatic irreversible pulpal infection.

Key words: Ibuprofen, Irreversible pulpitis; Endodontics.

INTRODUCTION

Maxillary teeth can be easily and successfully anesthetize using a fairly straightforward technique called infiltration. But the anatomy of mandible is different because of difference in cortical bone thickness and porosity so therefore it requires different administration technique¹.

Conventional IDNB is one of the most common technique to get pain control in highly inflamed teeth before endodontic treatment for lower first to third molars. The technique involved administration of lignocaine in the pterygomandibular space at a target area of mandibular foramen².

The conventional IDNB not always result in numbness of required teeth and soft tissues because of failure due to multiple reasons.³ This conventional method has high failure rate and the failure rates escalate to as high as 44-81%, in patients with symptomatic teeth⁴.

Ibuprofen is one of the most commonly and effectively used nonsteroidal anti-inflammatory agent. Its mechanism of action is not completely and properly understood but is related to inhibition and release of prostaglandins. There are multiple benefits of this drug such as it act as anti-inflammatory, pain killer and antipyretic⁵⁻⁹.

The rationale and significance of the present study is that effectiveness of premedication with Ibuprofen may increase the success chances of IDNB in lower molars in subjects with asymptomatic irreversible pulpal infection.

The gap in literature showed that there is limited data available in international literature on this comparison, and there is no local study available for such comparison of premedication. Therefore, the aim was to compare effectiveness of premedication with Ibuprofen with placebo to increase the success chances of IDNB in lower molars in subjects with asymptomatic irreversible pulpal infection.

MATERIALS & METHODS

This randomized clinical trial was conducted at department of Operative Dentistry, Akhtar Saeed Medical and Dental College, Lahore over six months after ethics approval and informed consent. The sample size of 60 patients was selected by non-probability, purposive sampling. The inclusion criteria were

- Age between 18-40 years
- Both genders
- Patients requiring elective endodontic treatment with asymptomatic mandibular molars
- Subjects who had not taken any analgesic for at least 12 hours before treatment
- The exclusion criteria were
- Subjects with history of allergies/hypersensitivity to ibuprofen, anesthetic solution (Lidocaine)
- Subjects with history of significant medical conditions, such as; uncontrolled diabetes, sever hypertension, medically compromise patients
- Fractured teeth (examined visually)
- History of cigarette smoking
- Subjects with history of anti-depressants
- Subjects with history of alcohol consumption
- Pregnant or nursing women

Sixty patients were selected and divided in to two groups (group 1 ibuprofen and group 2 placebo). Informed consent and demographic information such; name, age, gender, contact, address was obtained and the postgraduates treated all the patients. The blinding and randomization was done. Patients were pre-medicated and the treatment was commenced with IDNB 45 minutes after premedication. The failed patients were managed with alternate methods e.g. alternate anesthetic techniques/using extra anesthetic cartridge ampules/auxiliary anesthetic methods and marked as failure. SPSS version 17 software was used for data entry and analysis. Chi square test was applied to compare the analgesic effect. The data was collected and presented in form of frequency and percentages.

RESULTS

The mean ages in group 1 were 27.40±4.17 years and 25.73±4.79 years. The gender distribution is shown in Table 1. The results showed that premedication with ibuprofen gave 16.6% success rates vs 13.3% of placebo. (Table 2)

Table 1: Frequency percentage of patients according to sex (n=60)

Gender	Group 1	Group 2
Male	12(40%)	14(46.6%)
Female	18(60%)	16(53.4%)

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Table 2: Frequency and percentage of success rate in both groups (n = 60)

Success rate	Group 1	Group 2
Successful	5(16.66%)	4(13.33)
Unsuccessful	25(83.34%)	26(86.67)

P = 0.345

DISCUSSION

Nerve blocks for lower molars is one of a most common method in the treatment of mandibular endodontic managements by blocking the nerve conduction and transmission of inferior alveolar dental nerve impulses¹⁰⁻¹².

Premedication with certain drugs such as ibuprofen might improve the success rates of local anesthetics in severe cases of pulpal inflammation. The success chances of nerve blocks are found to be 70% in cases of no pulpal inflammation while, its success is found to be 73% in cases of pulpal inflammation^{13,14}.

The aim of current research was to compare effectiveness of premedication with Ibuprofen with placebo. Studies shows that there are limited data available in international literature on this comparison, and there is no local study available for such comparison of premedication.

Sixty patients were selected and divided in to two groups (group 1 ibuprofen and group 2 placebo). Patients were pre-medicated and the treatment was commenced with IDNB 45 minutes after premedication. The results showed that premedication with ibuprofen gave 16.6% success rates vs 13.3% of placebo. There was insignificant difference (P<0.05) between the groups.

Ibuprofen causes indirect analgesia by interfering in the production of prostaglandins^{6,7,15-18} so therefore it may increase the effectiveness of nerve block by interfering in the production of prostaglandins. Although Modaresi et al and Ianiro et al showed in their study that ibuprofen causes high IDNB success for lower molars but this is contrary to the findings of this study^{19,20}.

Within the limitations of this study it was showed that ibuprofen not caused high success chances of IDNB in lower molars in selected pulpal cases.

CONCLUSION

It was concluded that ibuprofen as compared to placebo did not increased the success chances of IDNB in lower molars in subjects with asymptomatic irreversible pulpal infection.

Conflict of interest: Nil

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