Assessment of effect of premedication with anti-inflammatory drugs on post- endodontic pain

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ABSTRACT

Background: The incidence and severity of post-operative pain are associated with specific dental treatments; the highest of which is root canal therapy. The present study was conducted to assess effect of premedication with anti-inflammatory drugs on post-endodontic pain.

Materials & Methods:45 subjects of both genderswere divided into three groups of 15 each. Group I was placebo, group II were prescribed 400 mg of ibuprofen and group III were prescribed 8 mg of dexamethasone.The post-endodontic pain intensity measured with a numericalrating scale (4, 8, 12, 24, and 48 hours).

Results: Group I was placebo, group II were prescribed 400 mg of ibuprofen and group III were prescribed 8 mg of dexamethasone. Single rooted teeth were 9, 7 and 10 and multi-rooted teeth were 6, 8 and 5 in group I, II and III respectively. Diagnosis was vital teeth in 8, 11 and 7 and non- vital in 7, 4 and 8 in group I, II and III respectively. Teeth were asymptomatic in 6, 7 and 9 and symptomatic in 9, 8 and 6 in group I, II and III respectively. Corah's Dentalof Anxiety Scores was no anxiety in 2, 1, 1, mild anxiety was 4, 7 and 8, moderate anxiety in 6, 5 and 5 and severe anxiety in 3, 2 and 1 in group I, II and III respectively. The difference was significant ($P< 0.05$).

Conclusion: Preoperative administration of Ibuprofen or dexamethasone reduces post-endodontic pain and discomfort in comparison with a placebo. Premedication with anti-inflammatory drugs could be contributed to control of the post-endodontic pain, mainly in patients more sensible for pain.

Key words:dexamethasone, endodontic pain, Ibuprofen

INTRODUCTION

The incidence and severity of post-operative pain are associated with specific dental treatments; the highest of which is root canal therapy. In spite of advances in root canal therapy and better knowledge of pulpal and periapical inflammation, up 40% of endodontic

patients report pain of different degrees. Post-endodontic pain, particularly after initial endodontic treatment, should ideally be eliminated by the therapy; however, analgesics and/or anti-inflammatory drugs are frequently required to reduce pain.[1]

There are several factors associated with pain after root canal treatment. Pre-operative factors such as acute exacerbation of chronic lesion, non-vital tooth, unusual root canal anatomy, periapical cysts, and abscess are responsible for flareups and pain.[2] Intraoperative factors such as apical extrusion of filling materials and instruments, irritating canal medications, and irrigation procedural complications, missed canals, and working without rubber dam isolation can increase the pain occurrence. Post-operative factors such as leaky temporary material and the effect of occlusion can also give rise to pain. Various investigations have been performed to evaluate the efficacy of variouspain management strategies and the influence of various techniques, medicaments, irrigants, analgesics, anesthetic agents, and post-operative factors on the amount of postoperative pain after root canal treatment.[3]

Non-steroidal (NSAID) and steroidal (SAID) anti-inflammatory drugs can reduce inflammation at different levels in the inflammatory process. Ibuprofen is an NSAID that exerts its analgesic and anti-inflammatory effects by inhibiting the cyclooxygenase (COX) enzymes COX-1 and COX-2.[4] Dexamethasone is a SAID that can have an effect on inflammation by suppressing vasodilation, PMNs migration, and phagocytosis. SAIDs are capable of down-regulating many pro-inflammatory cytokines associated with an inflammatory reaction and immune response.[5]The present study was conducted to assess effect of premedication with anti-inflammatory drugs on post- endodontic pain.

MATERIALS & METHODS

The present study consisted of 45 subjects of both genders.All gave their written consent to participate in the study.

Data such as name, age, gender etc. was recorded. Periodontal probing, a mobility assessment, thermal (cold) test, percussion and palpation evaluation and a periapical radiograph were recorded and a diagnosis was determined based on clinical and radiographic features. All were divided into three groups of 15 each. Group I was placebo, group II were prescribed 400 mg of ibuprofen and group III were prescribed 8 mg of dexamethasone.The post-endodontic pain intensity measured with a numericalrating scale (4, 8, 12, 24, and 48 hours). Secondary outcomes included number of anestheticcartridges used and consumption of rescue medication. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I: Distribution of patients

Groups	Group I	Group II	Group III
Agent	Placebo	400 mg ibuprofen	8 mg dexamethasone
M:F	10:8	7:8	6:9

Table I shows that group I had 10 males and 5 females, group II had 7 males and 8 females and group III had 6 males and 9 females.

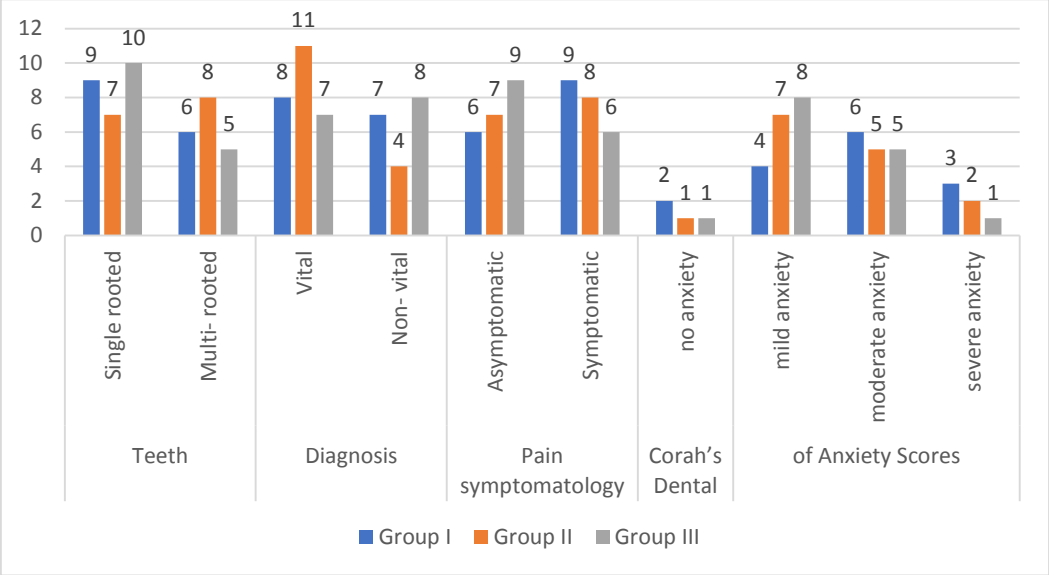
Table II: Assessment of parameters

Parameters	Variables	Group I	Group II	Group III	P value
Teeth	Single rooted	9	7	10	0.91
	Multi- rooted	6	8	5	
Diagnosis	Vital	8	11	7	0.87
	Non- vital	7	4	8	

Pain symptomatology	Asymptomatic	6	7	9	0.94
	Symptomatic	9	8	6	
Corah's Dental of Anxiety Scores	no anxiety	2	1	1	0.85
	mild anxiety	4	7	8	
	moderate anxiety	6	5	5	
	severe anxiety	3	2	1	

Table II, group I shows that single rooted teeth were 9, 7 and 10 and multi- rooted teeth were 6, 8 and 5 in group I, II and III respectively. Diagnosis was vital teeth in 8, 11 and 7 and non-vital in 7, 4 and 8in group I, II and III respectively. Teeth were asymptomatic in 6 , 7 and 9 and symptomatic in 9, 8 and 6in group I, II and III respectively.Corah's Dentalof Anxiety Scores was no anxiety in 2, 1, 1, mild anxiety was 4, 7 and 8, moderate anxiety in 6, 5 and 5 and severe anxiety in 3, 2 and 1in group I, II and III respectively.The difference was significant (P< 0.05).

Graph I: Assessment of parameters



DISCUSSION

Post-endodontic pain is a common problem that can occur after a root canal procedure. It is characterized by discomfort, tenderness, or pain in the area around the treated tooth, which can last for a few days or even weeks.[6] The pain can be mild to severe, and it can interfere with normal activities like eating, drinking, and talking.There are several reasons why post-endodontic pain can occur. The most common causes are inflammation or infection of the tissues around the treated tooth, pressure from the temporary filling or crown, and residual infection or debris left behind in the root canal system.[7]

To manage post-endodontic pain, your dentist may recommend over-the-counter pain relievers like ibuprofen or acetaminophen, as well as applying a cold compress to the affected area.[8] It is also important to avoid eating hard or crunchy foods and to stick to soft, easy-to-chew foods during the healing process.If the pain persists or becomes severe, it is important to contact your dentist as soon as possible.[9] They may need to adjust the temporary filling or crown, prescribe stronger pain medication, or perform additional treatment to address any underlying issues causing the pain.In general, most cases of post-endodontic pain resolve

within a few days to a week after the root canal procedure, and the tooth should gradually feel better as it heals. However, if you experience any unusual symptoms or complications, it is important to seek prompt dental care to prevent further problems.[10,11]The present study was conducted to assess effect of premedication with anti-inflammatory drugs on post-endodontic pain.

We found that group I was placebo, group II were prescribed 400 mg of ibuprofen and group III were prescribed 8 mg of dexamethasone. Jorge-Araújo et al[12] in their study sixty volunteers were divided into three groups (n=20 per group): PL, placebo; IB, 400 mg of ibuprofen; and DE, 8 mg of dexamethasone. The primary outcome was the post-endodontic pain intensity measured with a numerical rating scale (4, 8, 12, 24, and 48 h). Secondary outcomes included number of anesthetic cartridges used and consumption of rescue medication. There was no significant difference among groups ($p>0.05$) considering the pain intensity. Only 37% of IB group patients and 28% of DE group patients used some rescue medication. On the other hand, 74% of PL group patients mentioned the consumption of rescue medication; PL group had a statistically significant difference. Significant differences were not found in the reduction of pain intensity and the number of anesthetic cartridges used.

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The limitation the study is small sample size.

CONCLUSION

Authors found that preoperative administration of Ibuprofen or dexamethasone reduces post-endodontic pain and discomfort in comparison with a placebo. Premedication with anti-inflammatory drugs could be contributed to control of the post-endodontic pain, mainly in patients more sensible for pain.

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