Evaluation of pretreatment with gelofen and novafen on pain relief after endodontic treatment; A double-blind randomized clinical trial study

Seyed Mehdi Dejkam, Mohammad Kashefienejad (DDS), Sina Mirzaeerad (DDS), AliAkbar Moghadamnia (PhD), Hemmat Gholinia (MA)

1. Dental Student, Faculty of Dentistry, Babol University of Medical Sciences, Babol- Iran.
2. Assistant Professor, Dental Materials Research Center, Department of Endodontics, Faculty of Dentistry, Babol University of Medical Sciences, Babol- Iran.
3. Assistant Professor, Department of Endodontics, Faculty of Dentistry, Babol University of Medical Sciences, Babol- Iran.
4. Professor, Department of Pharmacology and Physiology, Faculty of Medicine, Babol University of Medical Sciences, Babol- Iran.
5. Master of Science in Statistics, Health Research Institute, Babol University of Medical Sciences, Babol-Iran.

Corresponding Author: Mohammad Kashefienejad, Faculty of Dentistry, Babol University of Medical Sciences, Babol- Iran. Email: m.kashefi@mubabol.ac.ir Tel: +981132291408-9

Abstract

Introduction: Feeling pain after root canal therapy has always been a major problem for patients and dentists. One of the suggested methods to manage the pain is using the prophylactic medication before treatment process. This study aimed at investigating the comparison of pretreatment with novafen versus gelofen on reducing the pain after root canal therapy.

Materials & Methods: This double-blind randomized clinical trial study was conducted on 60 patients aged 18-65 who were indicated for root canal therapy. Patients were randomly assigned to receive gelofen capsules (400mg), novafen capsules (200mg) and placebo two capsules by every patient of these groups one hour prior to sampling. Pre/post-treatment pain was measured using Visual Analog Scale (VAS) before treatment and 4, 8, 12, 24 and 48 hours after treatment.

Results: Both novafen and gelofen indicated significant analgesic effect during the study period (p<0.001). Pain severity within 8 hours after treatment was significantly lower in novafen group than two other groups (p=0.03). The difference between the severity of pain did not show any association to their place of life and gender in any groups.

Conclusion: Our findings revealed that the prophylactic novafen in comparison to gelofen had a better analgesic effect in short-term and could be a good candidate for the management of post-endodontic treatment pain.

Keywords: Pain, Root canal therapy, Tooth root, Dentists, Patients

Introduction

Pain and anxiety that sometimes happen during dental treatment need to be considered properly. [1] Endodontic procedures are usually performed without any pain during the treatment, but there is a possibility of experiencing pain after treatment. In a clinical study, 7%, 15%, and 21% of patients had severe, moderate and weak pain, respectively after root canal therapy. [2] Complaining about pain or flare-up after treatment was reported in those with feeling pain before beginning the procedure. Therefore, people who usually suffer from pain after treatment are the same individuals that are complaining about pain before treatment. For the tooth pain and particularly the pain after endodontic root canal is the use of analgesics including: Non-Steroidal Anti Inflammatory Drugs (NSAIDs) and acetaminophen are the most frequent administered drugs. [2] According to the immunological and histological studies, cyclooxygenase-2 enzyme exists in human dental pulp and inflamed pulp contains cells that contain cyclooxygenase-2, while very few of these cells are found in normal pulp. NSAIDs are the kind of drugs that act as controller of inflammatory pain by binding to plasma proteins. [3,4] On the other hand, these drugs could have undesirable side effects such as one of the gastrointestinal discomforts due to their restraining property on cyclooxygenase enzyme. The expression of mucin proteins which protect the intestinal mucosal cell growth was suppressed by non-selective NSAIDs and this expression was restored by PGE2. [5] Gelofen is a derivation of propionic acid and a member of anti-inflammatory non-steroidal drugs (NSAIDs) classification. Gelofen is used in curing weak to moderate pain, inflammation after surgery, dental pain and migraine. Gelofen has less gastrointestinal impacts than other NSAIDs; however, it can causes abdominal pain, nausea, vomiting, gastrointestinal bleeding and ulcers of the small intestine, Novafen is a compound drug containing 325...
mg acetaminophen, 200 mg ibuprofen and 40 mg of caffeine. Acetaminophen affects the central and peripheral nerve system. Ibuprofen has also an anti-inflammatory effect. Caffeine is also a narcotic analgesic. Several studies have been performed and evaluated on the impacts of analgesics on pain after endodontic therapy. In most of the studies, prescribing drugs were suggested after starting endodontic treatment, but still the best pre-treatment choice for pain management is a matter of controversy. Thus, we aimed to compare the effect of pretreatment with gelofen versus novafen in the management of the post endodontic pain relief.

Methods
This double-blind randomized placebo clinical trial study was performed on 60 patients who referred to the endodontic department in Babol University of Medical Sciences in the first semester of 2013-2014. The protocol was approved by research review board, Babol University of Medical Sciences, Babol, Iran and registered in Iranian Clinical Trials Registry (IRCT id: IRCT 2014041316973N2). All the patients were indicated for root canal therapy. The inclusion criteria of the study were having age range of 18 to 65 years old, no use of any other analgesic during treatment process or 12 hours before starting medication, having the ability of reading, understanding and filling the questionnaire, having teeth with alive pulps and no periapical lesion. The exclusion criteria of the study were having age range of 18 to 65 years old, no use of any other analgesic during treatment process or 12 hours before starting medication, having the ability of reading, understanding and filling the questionnaire, having teeth with alive pulps and no periapical lesion. The exclusion criteria of the study were having systemic diseases (Lupus, Diabetes mellitus etc), renal, nervous, heart or liver diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe abnormalities, all diseases, cancer or severe

Results
In a total of 60 patients, 24 (40%) were men and 36 (60%) were women. Forty one (68.3%) and 19 (31.7%) participants were living in urban and rural areas, respectively. Mean and standard deviation of the age of the participants in the Novafen, Gelofen, and placebo groups were 36.5±12.72, 31.3±9.95 and 41.35±13.14 years old, respectively. No significant difference was found in distribution of genders between groups (p=0.15). As indicated in table 1, the mean severity of pain was reported based on VAS concerning the time of taking the drug in three groups.
The pain severity after 8 hours was significantly lower in novafen group compared to other groups (gelofen and placebo) \((p=0.03)\). Mean intensity of the pain in groups taking gelofen and novafen compared to placebo over 12 hours and 48 h was lower after treatment but there was no significant difference among three groups which indicated that there was no long term analgesic effect than the placebo. According to repeated measures analysis, pain decreased in all three groups after treatment \((p<0.001)\). The trend of reducing the pain intensity within 48 hours among studied groups was displayed in figure 1.

In addition, the difference between the severity of pain did not show any association to their place of life and gender in any groups.

### Table 1. Mean severity of pain in studied groups based on VAS

<table>
<thead>
<tr>
<th>Group</th>
<th>Before treatment</th>
<th>4 hours after treatment</th>
<th>8 hours after treatment</th>
<th>12 hours after treatment</th>
<th>24 hours after treatment</th>
<th>48 hours after treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novafen</td>
<td>5.55±1.14</td>
<td>2.7±1.3</td>
<td>1.75±1.25</td>
<td>2.55±1.35</td>
<td>1.75±1.74</td>
<td>1±1.02</td>
</tr>
<tr>
<td>Gelofen</td>
<td>5.95±1.31</td>
<td>3.25±1.51</td>
<td>2.45±0.88</td>
<td>2.8±1.43</td>
<td>1.65±1.08</td>
<td>0.7±0.73</td>
</tr>
<tr>
<td>Placebo</td>
<td>5.15±1.03</td>
<td>2.35±1.755</td>
<td>2.5±0.68</td>
<td>3.4±1.6</td>
<td>1.8±1.67</td>
<td>1±1.33</td>
</tr>
</tbody>
</table>

**Figure 1.** Mean of VAS changes by time in three study groups

### Discussion

The present study indicated that comparing the placebo, gelofen and novafen showed a significant effect on reducing the pain after root canal therapy. Previous studies investigated the pain killer consumption before the root canal therapy and documented significant results which were consistent with our findings. \[9-11\] According to our findings, 8 hours after root canal therapy, the analgesic effect in novafen group was significantly higher than two other groups, but novafen effect was almost the same after 12, 24 and 48 hours long-term follow up. Arsalan et al. revealed that 6-hour period, both 20 mg of tenoxicam and 200 mg of ibuprofen provided significantly better pain relief than the placebo. \[12\] In a similar study prophylactic ibuprofen administration significantly reduced postendodontic pain at 4 and 8 h after initiation of root canal therapy in compare with etodolac and a placebo. \[13\] Also, Wells et al. compared the use of ibuprofen versus ibuprofen/acetaminophen for postoperative endodontic pain in a randomized double-blind study and found that there were decreases in pain levels and analgesic use over time for both groups. \[14\] Most studies suggested that the pain intensity reached to the highest level after 24 to 48 hours.
Therefore, we mostly focused on the determination of pain intensity after 48 hours. In the current study, the pain intensity decreased in all groups, which was statistically significant and showed that root canal therapy was independently efficient for decreasing the pain. Novafen is a compound drug that its prophylactic property can decrease the pain after root canal therapy and in comparing with gelofen has a significant effect on reducing the short-time postoperative pain.

Although among the studied populations there was no significant side effect mentioned by the subjects, long term use of these drugs may arise some levels of common side effects such as: nausea and dizziness, headache, gastrointestinal discomfort and etc. However, previous studies did not report any significant difference between groups in their short term period. We encountered several limitations in this study in regard to the small sample size and duration of the study period. Future RCT studies with larger sample size are suggested to reach more valid results.

**Conclusion**

Considering the findings of the present study, pretreatment with novafen in comparison to gelofen reduced the severity of pain, and novafen could be suggested for short-term pretreatment for post endodontic procedures.

**Acknowledgments**

We would like to appreciate Dr. Evangeline Foronda and Reyhaneh Barari for English editing and the staff of Dental Material Research Center of Babol University of Medical Sciences for supporting this project.

**Funding:** This study was a part of thesis and research project (Grant No:923648) which was supported and funded by the Research and Technology Deputy of Babol University of Medical Sciences.

**Conflict of interest:** Authors declared no conflict of interest.

**References**


