The effect of naproxen patches on relieving orthodontic pain by evaluation of VAS and IL-1β inflammatory factor: a split-mouth study

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Introduction: Pain related to orthodontic tooth movement is common and cause dissatisfaction and discomfort.

Objective: The present study aimed to compare the efficacy of naproxen patches in pain control during orthodontic tooth separation, by means of visual analogue scale (VAS) and interleukin 1β (IL-1β) levels in gingival crevicular fluid (GCF).

Methods: In this split-mouth triple-blind clinical trial, with 40 patients following separation, 5% naproxen or placebo patches were randomly placed on the upper right or left first molars every 8 hours. Pain intensity scores were determined after 2 and 6 hours, sleep time, 24 hours, days 2, 3 and 7 by the patients using a 100-mm VAS ruler. IL-1β levels in GCF were evaluated by ELISA at baseline, 1 and 24 hours and 7 days. Paired samples t-tests and two-way repeated measures ANOVA analysis of variance with a significance level of 0.05 were applied.

Results: A total number of 30 patients (13 males and 17 females) finished the trial. Significant differences were found in pain scores (p<0.0001) and IL-1β levels (p=0.047) between naproxen and placebo groups. Lower pain scores were reported for the patients using naproxen patches at all time points, except 1 hour after separation. IL-1β levels were lower for the patients using naproxen patches only 1 hour after separation (p=0.047). The peak of pain scores and IL-1β levels were calculated at 24 hours.

Conclusion: In the light of VAS scores and IL-1 levels, naproxen patches reduced the pain caused by separator placement.

Keywords: Pain management. Non-steroidal anti-inflammatory agents. Visual analog scale. Interleukin-1 beta.