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

Ladan Eslamian[1], Maryam Torshabi[2], Saeed Reza Motamedian[1], Yasamin Babaee Hemmati[3], Seyed Alireza Mortazavi[4]

DOI: *https://doi.org/10.1590/2177-6709.24.6.27.e1-7.onl*

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.

*** Access www.scielo.br/dpjo to read the full article.**

[1] Shahid Beheshti University of Medical Sciences, Dentofacial Deformities Research Center, Department of Orthodontics, School of Dentistry (Tehran, Iran).
[2] Shahid Beheshti University of Medical Sciences, Dental Biomaterials Department, School of Dentistry (Tehran, Iran).
[3] Guilan University of Medical Sciences, Dental Sciences Research Center, Department of Orthodontics, School of Dentistry (Rasht, Iran).
[4] Shahid Beheshti University of Medical Sciences, School of Pharmacy (Tehran, Iran).

How to cite: Eslamian L, Torshabi M, Motamedian SR, Hemmati YB, Mortazavi SA. The effect of naproxen patches on relieving orthodontic pain by evaluation of VAS and IL-1β inflammatory factor: a split-mouth study. Dental Press J Orthod. 2019 Nov-Dec;24(6):27.e1-7.
DOI: https://doi.org/10.1590/2177-6709.24.6.27.e1-7.onl

Submitted: October 16, 2018 - **Revised and accepted:** March 07, 2019

Contact address: Yasamin Babaee Hemmati
Department of Orthodontics, School of Dentistry
Guilan University of Medical Sciences, Fouman-Saravan Rd, Rasht, Iran
E-mail: Yasi.10482@gmail.com