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Analysis of leptin and fibronectin levels in the process of orthodontic tooth movement**Eka Erwansyah¹, Eky S Soeria Soemantri², Suryani As'ad¹ and Siti Wahyuni¹**¹Hasanuddin University, Indonesia²Padjadjaran University, Indonesia

Orthodontic force application on a tooth results in releasing of a number of biologically active substances such as enzymes, hormones and cytokines which trigger inflammation and tissue remodeling in periodontal ligament and eventually lead to tooth movement. Leptin and fibronectin are active substance that plays a role in bone remodeling, but its role in orthodontic tooth movement process is unknown. This study aims to determine whether leptin and fibronectin play a role in the process of orthodontic tooth movement. 11 women aged 20 to 25 years old who seek for orthodontic treatment participated in this study. The permanent maxillary canine was pulled distally. To measure systemic leptin in serum, local leptin and fibronectin levels in gingival crevicular fluid (GCF) taken before and 6, 24 and 144 hours after force application. Distance between maxillary canine and first molar were measured before and 3 weeks after orthodontic force application. Leptin serum was also taken prior to force application. Leptin levels decreased as the duration of orthodontic force applications. In contrast, fibronectin levels increased. Age and body mass index did not affect tooth movement rate, local leptin, fibronectin and leptin serum levels before force application. Leptin and serum leptin levels after 24 hours correlated negatively with tooth movement rate ($p < 0.03$ and < 0.001). No associations were found between fibronectin and tooth movement rate. Leptin levels in this study inhibit orthodontic tooth movement rate. To accelerate orthodontic tooth movement rate during orthodontic treatment, it is necessary to control leptin levels and bodyweight

Biography

Eka Erwansyah has completed his PhD from Hasanuddin University and Specialist studies from Padjajaran University Faculty of Dentistry. He is an Associate Professor as well as the Head of Orthodontic Department in Hasanuddin University Dental Hospital

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