عنوان مقاله:

Comparing the effect of Light, Moderate and Heavy orthodontic forces on osteoclast numbers in rats

محل انتشار:

دوفصلنامه ارتودنسی ایران, دوره 3, شماره 1 (سال: 1387)

تعداد صفحات اصل مقاله: 8

نویسندگان:

Esfandiar Akhavan Niaki - *Department of Orthodontics, School of Dentistry, Tehran University of Medical Sciences, Tehran, Iran*

Javad Chalipa - *Department of Orthodontics, School of Dentistry, Tehran University of Medical Sciences, Tehran, Iran*

Ahmad Reza Dehpour - *Department of Pharmacology, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran*

M Khalili - *Department of Pathology, School of Dentistry, Tehran University of Medical Sciences, Tehran ,Iran*

Arezoo Ghahari - *Department of Orthodontics, School of Dentistry, Tehran University of Medical Sciences, Tehran, Iran*

خلاصه مقاله:

Aim: The appearance of osteoclasts is the first step in orthodontic tooth movement. During orthodontic force application, the periodontal ligament (PDL) undergoes hyalinization. This tissue damage prevents the tooth from moving until the adjacent bone and necrotic tissue are removed by osteoclasts. There is a range of forces that produce the maximum rate of tooth movement. The purpose of this study was to compare the effect of different orthodontic forces on osteoclast numbers.Materials and Methods: Forty rats were randomly divided to ۴ experimental groups. Appliance exerted ۲۵gr in light, ۴۰gr in moderate and ۶۰gr in heavy group. There was not any appliance in control group. Animals were sacrified after ۱۴ days and tissue samples were prepared. The mesial and distal surfaces of first upper molar and adjacent alveolar bone were studied. Osteoclast numbers, cementoclast numbers, root length, root resorption, depth and length of resorptive cavities, PDL. width in coronal-middle-apical, apical and coronal inflammation, bone resorption, necrotic bone and tooth movement were evaluated. Mesial and distal surfaces were also compared.Results: In menial osteoclast numbers, depth of resorptive cavities, bone resorption, necrotic bone, PDL width and in distal apical inflammation, bone resorption, necrotic bone and PDL width were significant. Tooth movement was significantly different between all groups. (P<۰.۰۵)Conclusion: This data suggest that osteoclasts numbers are increased when force is increased. The magnitude of the orthodontic force is believed to be an important .factor, not only for the magnitude of the tooth movement but also for any tissue damage

کلمات کلیدی:

Osteoclast, Orthodontic Tooth Movement, Orthodontic Force, Root Resorption