OP18 EXAMINATION OF LOW DOSE LASER THERAPY AND PIEZOCISION EFFECTS ON THE RATE OF ORTHODONTIC TOOTH MOVEMENT

Gökhan Türker[1], Zeynep Burçin Gönen[2], İbrahim Yavuz[1], [1]Department of Orthodontics and [2]Genome and Stem Cell Center and Department of Oral and Maxillofacial Surgery, Erciyes University, Faculty of Dentistry, Kayseri, Turkey

AIM: To examine the effects of piezocision and low dose laser therapy (LDLT) on the rate of orthodontic tooth movement during canine distalization and to compare these application effects with each other.

SUBJECTS AND METHOD: Miniscrew supported canine distalization was performed on a full arch in 20 patients (15 females, 5 males) with a mean age of 16.35 ± 1.14 years. In this split mouth design study, the piezocision was carried out on the mesial and distal attached gingiva of the right maxillary canines and micro-damage with a 3 mm depth was created at cortical bone. The biostimulation was applied to left maxillary canines with a diode laser with a wavelength of 940 nm and energy density of 5 J/cm^2 at 0, 3, 7, 14, 21 and 28th days. The data was evaluated at baseline (T0), and at the first (T1), second (T2) and third (T3) month. Due to the reason that the variables were homogeneous, a paired *t*-test was used to determine the treatment changes within the group and a Student's *t*-test was applied between the groups. One-way ANOVA with repeated measures was used for the comparison of changes in different periods of treatment in each group and the least significant difference test was performed to determine the time period that the differences arose from.

RESULTS: In cephalometric evaluation, statistically significant retrusion ($P < 0.01$) and retraction ($P < 0.001$) occurred in the maxillary incisors in the T0-T3 period. It was also established that the maxillary canines were significantly tipped distally in both groups ($P < 0.001$) but no differences were present between the two groups. Canine distalization in the T0-T1 period was significantly different compared to other periods ($P < 0.001$) and this difference was significantly increased in the LDLT group in comparison with the piezocision group ($P < 0.01$). In other periods, there was no statistically significant difference between the two groups. However, the amount of distalization between the T1-T2 and T2-T3 periods were statistically significant in the LDLT group ($P < 0.05$).

CONCLUSIONS: From the results of this study, both piezocision and LDLT applications could be used for accelerated tooth movement and LDLT could be the method of choice for this purpose.