

INTISARI

Retraksi gigi kaninus merupakan tahapan penting pada perawatan ortodonti dengan kasus *crowding* atau kasus dengan pencabutan premolar pertama. Retraksi gigi kaninus pada mekanika sliding dapat menggunakan *closed coil spring*. *Closed coil spring* terdiri dari dua jenis, yaitu Nickel Titanium (NiTi) dan stainless steel. Alkalin Fosfatase (ALP) merupakan enzim penting yang muncul selama pergerakan gigi secara ortodonti karena berkaitan dengan remodeling tulang dimana proses pembentukan tulang dikaitkan dengan aktivitas ALP yang lebih tinggi. Tujuan dari penelitian adalah untuk mempelajari pengaruh jenis bahan *closed coil spring* dan lama retraksi terhadap aktivitas alkalin fosfatase cairan krevikuler gingiva pada retraksi kaninus sisi tertarik ataupun tertekan.

Subjek penelitian sebanyak 4 orang pasien Ortodonti RSGM UGM Prof Soedomo dengan kasus pencabutan premolar pertama kanan dan kiri rahang atas yang telah menyelesaikan tahap *leveling* dan *aligning*. Gigi kaninus rahang atas pada satu sisi diretraksi menggunakan SS *closed coil spring* dan sisi lainnya menggunakan NiTi *closed coil spring*. Sampel cairan krevikuler gingival diambil pada sisi mesial (tertarik) dan sisi distal (tertekan) pada gigi kaninus hari ke-0 (sebelum retraksi), 7,14,21 setelah dilakukan retraksi dengan gaya sebesar 150 g. Aktivitas ALP diukur menggunakan spektrofometer dengan panjang gelombang 405 nm.

Hasil penelitian menunjukkan terdapat perbedaan bermakna antara kelompok pada hari ke-0,7,14,21 dengan peningkatan aktivitas ALP yang signifikan pada hari ke-7, 14 pada kelompok SS dan hari ke-14 pada kelompok NiTi. Tidak terdapat perbedaan bermakna antara sisi tertarik ataupun tertekan. Aktivitas ALP cairan krevikuler gingiva pada retraksi gigi kaninus menggunakan SS *closed coil spring* lebih tinggi daripada menggunakan NiTi *closed coil spring*.

Kata kunci : alkalin fosfatase, *stainless steel closed coil spring*, *nickel titanium closed coil spring*, retraksi kaninus

ABSTRACT

Canine retraction is an important stage in orthodontic treatment with cases of crowding or cases with removal of the first premolar. Canine retraction in sliding mechanics can use closed coil spring. Closed coil spring consists of two types material, Nickel Titanium (NiTi) and stainless steel. Alkaline Phosphatase (ALP) is an important enzyme that appears during orthodontic tooth movement because it is associated with bone remodeling where the process of bone formation is associated with higher ALP activity. the purpose of this study was to study the effect of closed coil spring material types and the length of retraction on alkaline phosphatase activity of the gingival crevicular fluid in retracted or compressed side of canine retraction.

Subjects of the study were 4 orthodontics patients from RSGM Prof. Soedomo with cases of extracting the right and left first premolars of the maxilla which had completed the leveling and aligning stages. The maxillary canine on one side was retracted using SS closed coil spring and the other side using NiTi closed coil spring. The gingival crevicular fluid sample was taken on the mesial (pulled) side and the distal (depressed) side of the 0-day canine (before retraction), 7,14,21 after retraction with a force of 150 g. ALP activity was measured using a spectrophometer with a wavelength of 405 nm.

There were significant differences between groups on day 0,7th,14th,21st with a significant increase in ALP activity on day 7th, 14th in the SS group and day 14 in the NiTi group. There were no significant differences between pulled and compressed sides. Canine retraction using SS closed coil spring produce higher ALP activity compared to NiTi closed coil spring.

Keywords: alkaline phosphatase, stainless steel closed coil spring, nickel titanium closed coil spring, canine retraction.