

INTISARI

Pergerakan gigi secara ortodonti melibatkan stimulasi mekanis dan remodeling dari ligamen periodontal dan tulang alveolar. Proses remodeling meliputi interaksi antara resorpsi dan pembentukan tulang serta berperan penting pada homeostasis tulang.

Penelitian ini merupakan penelitian eksperimental laboratoris. Hewan coba yang digunakan adalah 24 ekor tikus *Sprague dawley* jantan berumur 2,5 – 3 bulan. Hewan coba dibagi menjadi kelompok perlakuan dan kelompok kontrol (n=3). Incisivus maksila digerakkan ke distal menggunakan alat ortodonti berupa kawat *stainless steel* 0,012 U dengan koil diameter 2 mm dan panjang lengan kawat 5 mm pada kedua kelompok. Hewan coba pada kelompok perlakuan diberi kafein yang terdapat pada minuman cokelat dengan dosis pemberian 2,7 mg. Pengambilan cairan krevikuler gingiva dilakukan pada hari ke-0, 1, 7 dan 14. Kadar alkalin fosfatase dianalisis dengan menggunakan uji spektrofotometer. Data hasil uji dianalisis menggunakan uji *two-way anova* dilanjutkan dengan uji *post hoc* LSD dengan tingkat kepercayaan 95%.

Hasil penelitian menunjukkan bahwa ada perbedaan yang signifikan antara hari pengamatan, kelompok kontrol dan kelompok perlakuan serta interaksi keduanya ($p < 0,05$). Kadar alkalin fosfatase kelompok perlakuan yang diberikan minuman cokelat lebih tinggi dibandingkan kelompok kontrol. Penelitian ini menunjukkan bahwa kandungan kafein dalam cokelat dapat menghambat kadar alkalin fosfatase pada pergerakan gigi secara ortodonti.

Kata kunci: Alkalin fosfatase, pergerakan gigi secara ortodonti, kafein dalam cokelat

ABSTRACT

Orthodontic tooth movement is induced by mechanical stimuli and facilitated by remodeling of periodontal ligament and alveolar bone. Remodeling process includes interaction between resorption and apposition of alveolar bone also have important role in bone homeostatic.

This research is an experimental laboratory. The experimental animals were 2.5-3 months old of 24 males *Sprague dawley* rats that divided into treatment group and control group (n=3). The incisors of maxillary were moved to distal with a removable orthodontic appliance from stainless steel wire 0.012 U with coil diameter 2 mm and long arms wire 5 mm in both groups. The rats in treatment group were administered with caffeine in chocolate at 2.7 mg. Gingival crevicular fluid was collected in 0, 1, 7 and 14 days. Determination of alkaline phosphatase was performed by spectrophotometer test. Analysis of the data was conducted using two way anova test followed by post hoc LSD test with 95% level of significance.

The result of experiment showed that significant differences between days, control group and treatment group, also the interaction between both of them ($p < 0.05$). Alkaline phosphatase in treatment group that administered with caffeine in chocolate was greater than control group. This experiment showed that caffeine in chocolate could prevent alkaline phosphatase in orthodontic tooth movement.

Key words: Alkaline phosphatase, orthodontic tooth movement, caffeine in chocolate