

INTISARI

Pergerakan gigi pada perawatan ortodonti terjadi ketika terdapat keseimbangan antara proses resorpsi dan aposisi tulang yang melibatkan osteoklas dan osteoblas dikenal dengan proses *remodeling* tulang. Aktivitas osteoblas pada proses *remodeling* dapat dilihat melalui aktivitas alkaline fosfatase (ALP). Proses *remodeling* dipengaruhi oleh berbagai macam faktor antara lain, usia, hormon dan status gizi. Susu kedelai merupakan produk olahan kedelai yang mengandung genistein isoflavon dan memiliki struktur dan aktivitas seperti hormon estrogen. Tujuan penelitian ini untuk mengetahui pengaruh pemberian susu kedelai terhadap aktivitas ALP cairan sulkus gingiva pada retraksi gigi kaninus sisi tertarik dan sisi tertekan. Penelitian ini merupakan penelitian kuasi eksperimental. Subjek penelitian merupakan 5 pasien ortodonti RSGM Prof. Soedomo sesuai dengan kriteria inklusi dengan gigi kaninus rahang atas sisi tertarik dan tertekan dibagi menjadi kelompok kontrol dan kelompok perlakuan. Lima pasien selama 14 hari pertama merupakan kelompok kontrol yaitu sebelum konsumsi susu kedelai (k), gigi kaninus kanan diretraksi dengan *closed coil spring*, gigi kaninus kiri tidak dilakukan retraksi, sampel cairan sulkus gingiva diambil pada hari ke-0, 7k, 14k. Lima pasien yang sama selama 14 hari berikutnya diinstruksikan untuk konsumsi susu kedelai sebanyak 50 mg per hari merupakan kelompok perlakuan (p), gigi kaninus kanan dilakukan retraksi dengan *closed coil spring*, gigi kaninus kiri tidak dilakukan retraksi. Sampel cairan sulkus gingiva diambil pada hari ke 7p dan 14p. Aktivitas ALP diukur dengan spektrofotometer dengan panjang gelombang 405nm. Perbedaan bermakna terlihat antara kelompok kontrol sebelum konsumsi susu kedelai dan kelompok perlakuan setelah konsumsi susu kedelai, aktivitas ALP pada kelompok perlakuan lebih tinggi dibanding kelompok kontrol. Pemberian susu kedelai dapat meningkatkan aktivitas ALP cairan sulkus gingiva pada retraksi gigi kaninus sisi tertarik dan sisi tertekan.

Kata kunci : *genistein, isoflavon*, retraksi gigi, sisi tertarik, sisi tertekan, alkaline fosfatase.

ABSTRACT

Orthodontic treatment relies on tooth movement which involved the equilibrium between alveolar bone resorption and apposition in bone remodeling process. Osteoblast and osteoclasts play important role during bone remodeling that occurred in both tension site and compression site. Alkaline Phosphatase (ALP) can be found as the marker of ongoing bone remodelling process. Many factors affecting osteoblast and osteoclast activity during tooth movement besides the mechanical factor from the orthodontic appliance itself. The other factors: age, hormonal activity and nutritional status also play important role during tooth movement. Soybean milk contains genistein isoflavon which has similar chemical structure as human estrogen hormon. The aim of this study is to find the effect of soy bean milk to the alkaline phosphatase (ALP) activity in the gingival crevicular fluid (GCF) during canine tooth retraction on the both tension site and compression site. This study was conducted as quasi-experimental study using five orthodontic patients from RSGM Prof Soedomo. Inclusive criterion was made with patient's maxillary canine tooth divided into two groups: control and experiment. Observations were made on the both groups' tension site and compression site. During first two weeks, patients were instructed not to consume the soybean milk while their right maxillary canine were retracted using closed coil spring (as experiment group) and their left maxillary canine were not (as control group). GCF was then collected on the day-0, 7th and 14th. Two weeks afterwards, patients were instructed to drink the soybean milk and the both canine was treated same as previous. GCF was then collected on the day-7th and 14th. ALP activity was then measured using spectrophotometric analysis with 450nm wavelength. Significant difference result showed between control group and experiment group, with higher result occurred at the experimental group. It can be concluded that soybean consumption could increase the ALP activity on the canine retraction on both tension site and compression site.

Keywords: *genistein, isoflavon, tooth retraction, alkaline phosphatase, tension site, compression site.*