

INTISARI

Proses remodeling tulang terjadi dengan seimbang pada usia muda, namun tingkat resorpsi menjadi lebih tinggi dengan pertambahan usia. Hal tersebut meningkatkan relaps pasca perawatan ortodonti pada usia dewasa. Madu mengandung flavonoid yang dapat menstimulasi sekresi *transforming growth factor-β1* (TGF-β1) yang berperan dalam proses diferensiasi osteoblas. Penelitian ini bertujuan menganalisis pengaruh pemberian madu terhadap kadar TGF-β1 sisi tertekan pasca stabilisasi ortodonti gigi insisivus atas tikus *Sprague-Dawley* dewasa.

Delapan ekor tikus *Sprague-Dawley* jantan dewasa (12-14 bulan) dibagi menjadi dua kelompok (kelompok kontrol tanpa pemberian madu dan kelompok perlakuan dengan pemberian madu). Gigi tikus digerakkan menggunakan *open coil spring* diantara gigi insisivus rahang atas dengan gaya 0,35 N selama 14 hari. Madu dosis 0,40 ml/200 gram berat badan diberikan satu kali sehari selama fase stabilisasi 14 hari pada kelompok perlakuan. Sampel cairan sulkus gingiva diambil menggunakan *paper point* dengan teknik intrasulkular selama 30 detik pada hari ke-0, 3, 7, dan 14 pasca stabilisasi. Uji TGF-β1 menggunakan metode ELISA. Analisis statistik menggunakan uji Anova dua jalur dan uji *Post Hoc* LSD $p < 0,05$.

Hasil penelitian menunjukkan pemberian madu meningkatkan kadar TGF-β1 secara signifikan. Kadar TGF-β1 kelompok madu lebih tinggi dibandingkan kelompok kontrol pada hari ke-3, 7 dan 14 pasca stabilisasi. Kesimpulan penelitian ini adalah pemberian madu selama fase stabilisasi dapat meningkatkan kadar TGF-β1 cairan sulkus gingiva pada tikus *Sprague-Dawley* dewasa sisi tertekan pasca stabilisasi ortodonti. Pemberian madu meningkatkan kadar TGF-β1 dengan menstimulasi proses osteoblastogenesis.

Kata kunci: *transforming growth factor-β1*, madu, pasca stabilisasi ortodonti, dewasa

ABSTRACT

The bone remodeling process is balanced at a young age, but resorption rate becomes higher with age. This increases relapse after orthodontic treatment in adulthood. Honey contains flavonoids that can stimulate the secretion of transforming growth factor- β 1 (TGF- β 1) which plays a role in the osteoblast differentiation process. This study aims to analyze the effect of honey administration on TGF- β 1 levels on the compression side after orthodontic stabilization of the upper incisor teeth of adult Sprague-Dawley rats.

Eight adult male Sprague-Dawley rats (12-14 months old) were divided into two groups (control group without honey administration and treatment group with honey administration). The rats' teeth were moved using an open coil spring between the maxillary incisors with a force of 0.35 N for 14 days. Honey dose of 0.40 ml/200 g body weight was given once a day during the 14-day stabilization phase in the treatment group. Gingival sulcus fluid samples were taken using paper points on days 0, 3, 7, and 14 by intrasulcular technique for thirty seconds each after stabilization. TGF- β 1 assay was performed using the ELISA method. Statistical analysis was performed with two-way Anova test and Post Hoc LSD test $p < 0.05$.

The results showed that honey administration significantly increased TGF- β 1 levels. The honey group had higher TGF- β 1 levels than the control group on days 3, 7 and 14 after orthodontic stabilization. The conclusion of this study is that honey administration during stabilization phase can increase TGF- β 1 levels in gingival sulcus fluid of adult Sprague-Dawley rats on the compression side post orthodontic stabilization. Honey administration increased TGF- β 1 levels by stimulating osteoblastogenesis.

Keywords: transforming growth factor- β 1, honey, post orthodontic stabilization, adult