

INTISARI

Maloklusi merupakan penyimpangan oklusi normal susunan gigi geligi. Perawatan ortodonti dapat mencegah adanya maloklusi. Salah satu risiko perawatan ortodonti adalah relaps. Relaps merupakan suatu kondisi ketika gigi kembali sebelum perawatan ortodonti. Fibroblas yang terletak dalam ligamen periodontal akan menurun ketika relaps terjadi. Kandungan CHA dan simvastatin mampu mencegah terjadinya relaps dengan meningkatkan fibroblas.

Penelitian ini merupakan eksperimental laboratoris menggunakan tikus Sprague Dawley jantan berumur 3 bulan dengan berat 250-300 gram, dibagi menjadi 2 kelompok, yaitu kelompok kontrol tidak diberikan injeksi dan kelompok perlakuan diberikan injeksi gel nanoemulsi CHA-simvastatin sebanyak 0.15 mg/10 μ L. Pemberian dosis dilakukan sebanyak dua kali, yaitu hari ke-1 dan 4 pada fase retensi. Setiap kelompok kontrol dan perlakuan dibedakan berdasarkan hari pengamatan, yaitu hari ke-0, 1, 7, dan 14. Hewan coba diaplikasikan alat ortodonti selama 14 hari, meliputi 7 hari fase pergerakan gigi dan 7 hari fase retensi. Sampel penelitian dilakukan pengecatan HE dan diamati menggunakan mikroskop cahaya. Data yang didapatkan dianalisis menggunakan uji anova dua jalur.

Hasil penelitian menunjukkan bahwa jumlah sel fibroblas pada kelompok perlakuan lebih tinggi dibandingkan kelompok kontrol ($p < 0,05$). Pemberian gel nanoemulsi CHA-simvastatin dapat meningkatkan jumlah sel fibroblas pasca perawatan ortodonti.

Kata kunci: CHA, Fibroblas, Relaps, Simvastatin

ABSTRACT

Malocclusion is a deviation from the normal occlusion of the teeth arrangement. Orthodontic treatment can prevent malocclusion. One of the risks of orthodontic treatment is relapse. Relapse is a condition where teeth return before orthodontic treatment. Fibroblasts that located in the periodontal ligament will decrease when relapse occurs. The content of CHA and simvastatin can prevent relapse by increasing fibroblasts.

This research was a laboratory experiment by using 3 months old male *Sprague Dawley* rats weighing 250-300 grams. They were divided into 2 groups, namely the control group which was not given an injection and the treatment group was given an injection of 0.15 mg/10 μ L of nano emulsion gel of CHA-simvastatin. The dose was given twice, namely the first day and the fourth day in the retention phase. Each control group and treatment group were differentiated based on the day of observation, namely the zero day, the first day, the seventh day, and the fourteenth day. The experimental animals were applicated to orthodontic appliances for 14 days, including 7 days of the teeth movement phase and 7 days of the retention phase. The research samples were hematoxylin eosin (HE) stained and observed using a light microscope. The data obtained were analyzed by using a two way ANOVA test.

The results of this research indicated that the number of fibroblast cells in the treatment group was higher than in the control group ($p < 0.05$). Giving nano emulsion gel of CHA-simvastatin can increase the number of fibroblast cells after orthodontic treatment.

Key words: CHA, Fibroblast, Relapse, Simvastatin