INTISARI

Penelitian ini membandingkan pengaruh injeksi intrasulkular *Platelet-Rich Fibrin* (PRF) dan *Advanced Platelet-Rich Fibrin* (A-PRF) terhadap ekspresi *runt-related transcription factor 2* (RUNX2) dalam pergerakan gigi ortodonti pada kelinci (*Oryctolagus cuniculus*). Penelitian menggunakan 45 kelinci jantan yang dibagi menjadi tiga kelompok: kontrol, PRF, dan A-PRF. Peranti ortodonti *open coil spring* dipasang pada gigi insisivus rahang bawah dengan gaya 50 cN. Injeksi PRF dan A-PRF diberikan secara intrasulkular setiap 7 hari. Ekspresi RUNX2 dianalisis menggunakan metode ELISA pada hari ke-0, 3, 7, 14, dan 21.

Hasil penelitian menunjukkan bahwa ekspresi RUNX2 meningkat signifikan pada hari ke-3, kemudian menurun bertahap hingga hari ke-21. Kelompok A-PRF menunjukkan peningkatan ekspresi RUNX2 tertinggi, diikuti oleh PRF dan kontrol. Uji statistik ANAVA dua jalur dan *Post Hoc* mengkonfirmasi perbedaan signifikan antar kelompok dan waktu pengamatan ($p < 0{,}05$). Kesimpulannya, injeksi intrasulkular A-PRF lebih efektif meningkatkan ekspresi RUNX2 dibandingkan PRF, sehingga berpotensi mempercepat pergerakan gigi ortodonti melalui peningkatan osteoklastogenesis dan remodeling tulang.

Kata Kunci: PRF, A-PRF, RUNX2, pergerakan gigi ortodonti, kelinci.

ABSTRACT

This study compared the effects of intrasulcular injections of *Platelet-Rich Fibrin* (PRF) and *Advanced Platelet-Rich Fibrin* (A-PRF) on *runt-related transcription factor 2* (RUNX2) expression during orthodontic tooth movement in rabbits (*Oryctolagus cuniculus*). Forty-five male rabbits were randomly divided into three groups: control, PRF, and A-PRF. An orthodontic *open coil spring* was applied to the lower incisors with a force of 50 cN. Intrasulcular injections of PRF and A-PRF were administered every 7 days. RUNX2 expression was analyzed using ELISA method on days 0, 3, 7, 14, and 21.

The results revealed a significant increase in RUNX2 expression on days 3 and decreasing until days 21. The A-PRF group exhibited the highest RUNX2 expression, followed by PRF and the control group. Two-way *ANOVA* and *Post Hoc* tests confirmed significant differences among groups and observation periods ($p < 0.05$). In conclusion, intrasulcular A-PRF injection was more effective than PRF in enhancing RUNX2 expression, suggesting its potential to accelerate orthodontic tooth movement by promoting osteoclastogenesis and bone remodeling.

Keywords: PRF, A-PRF, RUNX2, orthodontic tooth movement, rabbits.