

INTISARI

Guided Tissue Regeneration (GTR) merupakan perawatan penyakit periodontal regeneratif melalui penempatan membran (*scaffold*) berupa nanofiber *chitosan-polyvinyl alcohol* (PVA). Penggunaannya dapat dikombinasikan dengan *growth factor* yang berperan dalam penyembuhan jaringan periodontal melalui penambahan *Injectable Platelet-Rich Fibrin* (i-PRF) yang memiliki kandungan *Platelet-Derived Growth Factor-AB* (PDGF-AB). Penelitian ini bertujuan untuk mengetahui pengaruh kombinasi i-PRF dengan nanofiber *chitosan-PVA* terhadap kadar PDGF-AB.

Sampel darah disentrifugasi dengan kecepatan 700 rpm selama 3 menit dan diambil lapisan kuning paling atas, yaitu i-PRF sebagai objek penelitian. Sampel penelitian terdiri dari tiga kelompok bahan, meliputi kombinasi i-PRF dan nanofiber *chitosan-PVA*, i-PRF, dan nanofiber *chitosan-PVA*, yang dimasukkan dalam *Phosphat Buffer Saline* (PBS), dan diamati pada lima waktu, yaitu 15 menit, 60 menit, 1 hari, 3 hari, dan 10 hari. Sampel diuji kadar PDGF-AB menggunakan metode ELISA dan diamati melalui nilai absorbansi dari pembacaan *microplate reader* panjang gelombang 450 nm. Data hasil penelitian dianalisis menggunakan uji *Shapiro-Wilk*, dilanjutkan uji *Friedman* dan *Mann-Whitney*.

Analisis uji *Friedman* menunjukkan bahwa absorbansi kelompok kombinasi berpengaruh dalam menghambat pelepasan kadar PDGF-AB ($p < 0.05$), kemudian uji *Mann-Whitney* juga menunjukkan bahwa terdapat perbedaan bermakna antara absorbansi kelompok i-PRF murni setiap waktu pengamatan dengan kelompok kombinasi dan nanofiber ($p < 0.05$). Perbedaan bermakna juga dijumpai antara absorbansi kelompok i-PRF 60 menit dengan 1 hari; absorbansi kelompok nanofiber 15 menit, 60 menit, 10 hari dengan kelompok nanofiber 1 hari dan 3 hari serta kelompok kombinasi 15 menit dan 3 hari. Kesimpulan penelitian adalah kombinasi i-PRF dan nanofiber *chitosan-PVA* berpengaruh dalam menghambat kadar PDGF-AB.

Kata-kata kunci : *injectable platelet-rich fibrin*, nanofiber *chitosan-polyvinyl alcohol*, kadar *platelet-derived growth factor-AB* (PDGF-AB)

ABSTRACT

Guided Tissue Regeneration (GTR) is a regenerative periodontal disease treatment by placing a scaffold, chitosan-polyvinyl alcohol (PVA) nanofibers. Nanofibers can be combined with growth factors, which play a role in periodontal tissue healing by adding Injectable Platelet-Rich Fibrin (i-PRF), which contains Platelet-Derived Growth Factor-AB (PDGF-AB). This study aims to determine the effect of the combination of i-PRF with chitosan-PVA nanofiber on PDGF-AB level.

The blood sample was centrifuged at 700 rpm for 3 minutes and the top yellow layer was taken, namely i-PRF as the object of research. The sample consisted of three groups, which were combination of chitosan-PVA nanofiber and i-PRF, i-PRF, and chitosan-PVA nanofiber, which were stored in Phosphate Buffer Saline (PBS), and observed at five times, 15 minutes, 60 minutes, day 1, day 3, and day 10. The samples were tested for PDGF-AB levels using the ELISA method and observed through the absorbance from the microplate reader (wavelength 450 nm). The data were analyzed using the Shapiro-Wilk test, followed by the Friedman and *Mann-Whitney* tests.

Analysis of the Friedman test showed that the absorbance of the combination group had an effect on inhibiting the release of PDGF-AB levels ($p < 0.05$), then the *Mann-Whitney* test showed that there was a significant difference between the absorbance of the i-PRF group each observation time with the combination and nanofiber groups ($p < 0.05$). Significant differences were also found between the i-PRF 60 minutes with day 1; the nanofiber groups 15 minutes, 60 minutes, day 10 with the nanofiber groups 1 day and 3 days and the combination group 15 minutes and day 3. The study concludes that the combination of i-PRF and chitosan-PVA nanofiber had an effect on inhibiting PDGF-AB levels.

Keywords : injectable platelet-rich fibrin, chitosan-polyvinyl alcohol nanofiber, levels of platelet-derived growth factor-AB (PDGF-AB)