INTISARI

Perawatan penyakit periodontal dengan pemanfaatan nanofiber yang mengandung *freeze-dried platelet-rich plasma (fd-PRP)* pada prosedur *Guided Tissue Regeneration*, dapat mencegah migrasi epitel dan memicu terjadinya regenerasi jaringan periodontal karena adanya berbagai macam *growth factor* seperti *Platelet Derived Growth Factor-AB* (PDGF-AB). Pelepasan kadar PDGF-AB dari PRP terjadi dalam waktu yang singkat sehingga tidak optimal dalam proses penyembuhan. Bahan kitosan dapat mengendalikan kadar pelepasan *growth factor* sehingga dapat meningkatkan efektivitas dalam proses penyembuhan. Tujuan penelitian ini untuk mengetahui pengaruh lama aplikasi nanofiber PRP kitosan PVA terhadap kadar PDGF-AB.

Pada penelitian ini digunakan sampel nanofiber PRP kitosan PVA yang direndam dalam 10 ml larutan NaCl 0,9% untuk dilakukan uji *High Performance Liquid Chromatography* (HPLC). Uji HPLC dilakukan untuk mengetahui kadar pelepasan PDGF-AB dalam lima waktu aplikasi, yaitu 15 menit, 60 menit, 1 hari, 3 hari, dan 10 hari. Data hasil penelitian selanjutnya dilakukan analisis menggunakan uji ANAVA satu jalur dan uji korelasi Pearson.

Hasil penelitian menunjukkan perbedaan yang signifikan ($p<0,05$) pada kadar pelepasan PDGF-AB antarkelompok dan terdapat korelasi yang sangat kuat ($r=0,990$) antara lama aplikasi nanofiber PRP kitosan PVA dengan kadar PDGF-AB, semakin lama aplikasi maka semakin tinggi kadar pelepasan PDGF-AB. Kesimpulan dari penelitian ini adalah lama aplikasi nanofiber PRP kitosan PVA berpengaruh terhadap peningkatan kadar PDGF-AB.

Kata kunci : kitosan, nanofiber, *platelet derived growth factor-AB*, *platelet-rich plasma*, kadar PDGF-AB

ABSTRACT

Treatment of periodontal disease by utilizing nanofibers containing freeze-dried platelet-rich plasma (fd-PRP) in the Guided Tissue Regeneration procedure can prevent epithelial migration and trigger periodontal tissue regeneration due to various growth factors such as Platelet Derived Growth Factor-AB (PDGF-AB). The release of PDGF-AB level from PRP occurs in a short time hence it is not optimal in the healing process. Chitosan can control the level of growth factor release as it can increase the effectiveness in the healing process. The purpose of this study was to determine the effect of the duration of the PRP chitosan PVA nanofiber application on PDGF-AB levels.

In this study, PRP chitosan PVA nanofiber were used as samples by soaking them in NaCl 0,9% for High Performance Liquid Chromatography (HPLC) tests. HPLC test was conducted to get the release of PDGF-AB level in five different times of application, namely 15 minutes, 60 minutes, a day, 3 days, and 10 days. The results were statistically analyzed using the one-way ANOVA test and the Pearson correlation test.

The results showed a significant mean differences ($p<0.05$) in the level of PDGF-AB release between groups and there was a very strong correlation between the duration of PRP chitosan PVA nanofiber application with PDGF-AB level. The positive correlation (+0,990) implied that the longer the time of application, the higher the level of PDGF-AB released from the nanofiber. The conclusion of this study is the duration of the PRP chitosan PVA nanofiber application has an effect to the level of PDGF-AB.

Keywords : chitosan, levels of PDGF-AB, nanofiber, *platelet derived growth factor-AB, platelet-rich plasma*