

INTISARI

Penyakit periodontal adalah berbagai macam kondisi inflamasi kronis pada gingiva, tulang dan ligamen yang mendukung gigi. Perawatan periodontal diharapkan mampu mencapai tujuan terapeutik; yaitu regenerasi. Saat ini perawatan periodontal dengan konsentrat platelet, seperti *Platelet-Rich Plasma* (PRP) dan *Platelet-Rich Fibrin* (PRF), banyak dikembangkan. Kandungan *growth factors* dalam konsentrat platelet mampu memicu regenerasi jaringan periodontal. *Vascular Endothelial Growth Factor* (VEGF) merupakan salah satu *growth factor* dalam konsentrat platelet yang berperan dalam regenerasi jaringan periodontal dengan memicu proses neo-angiogenesis. Variasi konsentrat platelet dikembangkan dengan protokol preparasi yang berbeda. Perbedaan preparasi konsentrat platelet akan mempengaruhi pola pelepasan VEGF. *Narrative review* ini bertujuan untuk mengkaji pengaruh jenis konsentrat platelet terhadap pola pelepasan *Vascular Endothelial Growth Factor* (VEGF) pada penyembuhan penyakit periodontal.

Artikel diperoleh dari *database* Pubmed, Science Direct, Google Scholar, SAGE Journals, dan WILEY Online Library. Sebanyak 20 artikel berbahasa Inggris yang diterbitkan dari tahun 2006 – 2021 dan memenuhi kriteria digunakan dalam *review* ini.

Hasil *review* artikel diperoleh perbedaan protokol preparasi mempengaruhi jumlah dan dinamika pelepasan VEGF. Perbedaan protokol preparasi akan mempengaruhi viabilitas sel, struktur matriks fibrin, jumlah sel, dan distribusi sel pada sediaan konsentrat platelet. Regenerasi periodontal dipengaruhi oleh jumlah VEGF yang dilepaskan. Penelitian lebih lanjut diperlukan untuk mengetahui efektivitas konsentrat platelet pada defek periodontal sebagai pertimbangan dalam pemilihan material.

Kata kunci: *platelet concentrate, Platelet-Rich Plasma (PRP), Platelet-Rich Fibrin (PRF), Vascular Endothelial Growth Factor (VEGF), dan growth factors release.*

ABSTRACT

Periodontal disease is various chronic inflammatory conditions of the gingiva, bone, and ligament that support the teeth. Periodontal treatment is expected to be able to achieve the therapeutic goal; regeneration. Currently, periodontal treatment with platelet concentrates, such as Platelet-Rich Plasma (PRP) and Platelet-Rich Fibrin (PRF), has been widely developed. Growth factors in platelet concentrates can trigger the regeneration of periodontal tissue. Vascular Endothelial Growth Factor (VEGF) is one of the growth factors in platelet concentrates that regulate the regeneration of periodontal tissue by triggering the neo-angiogenesis process. Variation of platelet concentrates was developed with different preparation protocols. Differences in the preparation of platelet concentrates affected VEGF release. The aim of this narrative review was to determine the effect of the various platelet concentrates on the pattern of release of the VEGF in the healing of periodontal disease.

Articles are obtained from Pubmed, Science Direct, Google Scholar, SAGE Journals, dan WILEY Online Library. A total of 20 English articles were published from 2006 – 2021 and had met the criteria were used in this review.

The result of the article review showed the differences in preparation protocols affected the amount and dynamics of VEGF release. Differences in preparation protocols affected cells viability, fibrin matrices structure, cells count, and cells distribution. Periodontal regeneration is influenced by the amount of VEGF released. Further research is needed to determine the effectiveness of platelet concentrates in periodontal defects as a consideration in material selection.

Keywords: platelet concentrate, Platelet-Rich Plasma (PRP), Platelet-Rich Fibrin (PRF), Vascular Endothelial Growth Factor (VEGF), and growth factors release.