

## INTISARI

Penyakit periodontal merupakan suatu kondisi inflamasi kronis yang bersifat destruktif yang mengenai jaringan periodontal, meliputi gingiva, sementum, ligamen periodontal, dan tulang alveolar. Perawatan penyakit periodontal menerapkan konsep *regenerative dentistry* dengan memanfaatkan konsentrat platelet. Konsentrat platelet merupakan substansi bioaktif yang berasal dari darah pasien setelah melalui proses sentrifugasi. Konsentrat platelet dapat memicu proses regenerasi jaringan periodontal pada perawatan penyakit periodontal melalui pelepasan berbagai *growth factor*, salah satunya adalah *epidermal growth factor* (EGF). Semakin berjalannya waktu, konsentrat platelet mengalami modifikasi dalam protokol preparasinya sehingga jenis konsentrat platelet semakin bervariasi, seperti *platelet-rich plasma* (PRP) dan *platelet-rich fibrin* (PRF) beserta derivatnya. Tujuan *narrative review* ini adalah untuk mengkaji pengaruh jenis konsentrat platelet terhadap pola pelepasan EGF pada penyembuhan penyakit periodontal.

Artikel yang dibahas dalam *narrative review* ini diperoleh dari lima *database*, antara lain PubMed, ScienceDirect, Google Scholar, SAGE Journals, dan WILEY Online Library. Kata kunci yang digunakan dalam pencarian artikel, yaitu *platelet concentrate*, *platelet-rich plasma* (PRP), *platelet-rich fibrin* (PRF), *epidermal growth factor* (EGF), dan *growth factor release*. Selanjutnya, artikel diseleksi sesuai dengan kriteria inklusi dan eksklusi yang telah ditentukan sehingga didapatkan sebanyak 15 artikel.

Hasil *narrative review* menunjukkan bahwa terdapat perbedaan pola pelepasan EGF pada berbagai jenis konsentrat platelet yang dipengaruhi oleh beberapa faktor, antara lain sistem preparasi, keterlibatan antikoagulan, jenis aktivator, protokol sentrifugasi, dan waktu penelitian sehingga menunjukkan konsentrasi pelepasan EGF yang berbeda yang dapat berpengaruh terhadap regenerasi jaringan periodontal. Kesimpulan *narrative review* ini adalah jenis konsentrat platelet berpengaruh terhadap pola pelepasan EGF pada penyembuhan penyakit periodontal.

**Kata kunci:** penyakit periodontal, konsentrat platelet, PRP, PRF, EGF

## ***ABSTRACT***

Periodontal disease is a chronic, destructive inflammatory condition that affects periodontal tissue, including gingiva, cementum, periodontal ligament, and alveolar bone. Regenerative dentistry concept is used in periodontal disease treatments by utilizing platelet concentrate. Platelet concentrate is a bioactive substance which derives from patient's blood after going through centrifugation process. Platelet concentrate can trigger periodontal tissue regeneration in periodontal disease treatment by releasing various growth factors, including epidermal growth factor (EGF). Over the time, platelet concentrate undergo modifications in its preparation protocol so that the type of platelet concentrate become more varied, such as platelet-rich plasma (PRP), platelet-rich fibrin (PRF), and their derivatives. The aim of this narrative review was to elaborate the effect of various types of platelet concentrate on the pattern of EGF release in periodontal disease treatment.

The articles that reviewed in this narrative review were obtained from five databases, such as PubMed, ScienceDirect, Google Scholar, SAGE Journals, and WILEY Online Library. Keywords used in literature search were platelet concentrate, platelet-rich plasma (PRP), platelet-rich fibrin (PRF), epidermal growth factor (EGF), and growth factor release. Furthermore, the articles were selected according to predetermined inclusion and exclusion criteria so that the 15 articles were obtained.

This narrative review showed that there was differences on the pattern of EGF release in various types of platelet concentrate which are influenced by several factors, such as preparation system, the need of anticoagulant, the type of activator, centrifugation protocols, and research time, thereby showing difference level of EGF release which affected periodontal tissue regeneration. The conclusion of this narrative review was various types of platelet concentrate affected the pattern of EGF release in periodontal disease treatment.

**Keywords:** periodontal disease, platelet concentrate, PRP, PRF, EGF