INTISARI

Platelet-rich fibrin sebagai biomaterial *autologous* adalah generasi kedua konsentrat platelet yang digunakan sebagai salah satu pilihan terapi regeneratif di kedokteran gigi. Modifikasi terhadap teknik preparasi PRF dilakukan untuk meningkatkan kapasitas regeneratif PRF, salah satunya yaitu dengan mereduksi *relative centrifugal force* (RCF) yang kemudian menghasilkan suatu konsep bernama *low speed centrifugation concept* (LSCC). Penulisan *narrative review* ini bertujuan untuk mengkaji pengaruh penerapan LSCC terhadap komponen *growth factors* dalam berbagai sediaan PRF yang berperan dalam proses regenerasi jaringan periodontal berdasarkan litertur ilmiah yang ada.

Literatur ilmiah bersumber dari database Cochrane, Elsevier, Nature, PubMed, ScienceDirect, SpringerLink, dan Wiley Online. Pemilihan artikel disesuaikan dengan kriteria inklusi dan eksklusi yang telah ditetapkan dengan menggunakan kata kunci dan formula *Boolean* untuk memudahkan pencarian literatur.

Komponen *growth factors* dalam *narrative review* ini dikaji berdasarkan dua parameter, yaitu pola dan akumulasi pelepasan masing-masing *growth factors* pada *high* RCF PRF dan PRF yang menerapkan LSCC. Pengaruh LSCC pada A-PRF+ dapat meningkatkan pelepasan *growth factors* VEGF, EGF, PDGF-AA, PDGF-BB, PDGF-AB, IGF, dan TGF-β1. *Advanced platelet-rich fibrin* dengan LSCC juga mengalami peningkatan *growth factors* yang sama, kecuali IGF. *Low speed centrifugation concept* pada jenis sediaan I-PRF diketahui meningkatkan pelepasan VEGF, EGF, dan TGF-β1. Semua *growth factors* dilepaskan secara berkelanjutan yang akan mendukung proses regenerasi jaringan periodontal.

Kata Kunci: *platelet-rich fibrin*, *low speed centrifugation concept*, *growth factor*, *relative centrifugal force*

ABSTRACT

Platelet-rich fibrin as an autologous biomaterial is a second generation platelet concentrate which is used as an option for regenerative therapy in dentistry. Modification to the PRF preparation technique was carried out to increase the regenerative capacity of the PRF, one of them is by reducing the relative centrifugal force which then resulted in a concept called the low speed centrifugation concept (LSCC). This narrative review aimed to examine the effect of LSCC on the components of growth factors in various PRF that play a role in the regeneration process of periodontal tissue based on the existing scientific literature.

Reviewed articles were taken from Cochrane, Elsevier, Nature, PubMed, ScienceDirect, SpringerLink, and Wiley Online Library databases published in 2011-2021. The selection of articles was adjusted to the inclusion and exclusion criteria that had been set by using keywords and Boolean formulas to facilitate literature searches.

The growth factors in this narrative review were studied based on two parameters, namely comparing the pattern and accumulation of release of each growth factor between high RCF PRF and PRF applying LSCC. The effect of LSCC on A-PRF+ can increase the release of growth factors VEGF, EGF, PDGF-AA, PDGF-BB, PDGF-AB, IGF, and TGF-β1. Advanced platelet-rich fibrin with LSCC also experienced the same increase in growth factors, except for IGF. Low speed centrifugation concept in other types of preparations, namely I-PRF, can increase the release of VEGF, EGF, TGF-β1. All growth factors are released sustainably which will support the regeneration of periodontal tissue.

Key words: *platelet-rich fibrin, low speed centrifugation concept, growth factor, relative centrifugal force*