INTISARI

PERBEDAAN PENAMBAHAN *PLATELET RICH PLASMA* DAN *PLATELET RICH FIBRIN* TERHADAP PROFIL DEGRADASI PADA PERANCAH REGENERASI TULANG

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Latar belakang: *Platelet-rich Plasma* (PRP) didefinisikan sebagai trombosit terpekatkan yang mengandung banyak faktor pertumbuhan. PRP memiliki peran penting dalam proses penyembuhan tulang. *Platelet-rich Fibrin* (PRF) merupakan pengembangan konsentrat platelet yang tidak memanfaatkan faktor anti koagulan. PRF dissebut juga sebagai leukosit-PRF karena memiliki sifat antisipasi dalam meregenerasi jaringan dan penyembuhan luka. PRP dan PRF dapat di inkorporasikan dengan perancah dalam rekayasa jaringan tulang. Bahan material perancah memiliki sifat tidak mudah larut atau degradasi agar proses pelepassan faktor pertumbuhan dapat sesuai dengan proses pembentukan jaringan tulang.
Tujuan Penelitian: Penelitian ini bertujuan untuk mengetahui perbedaan profil degradasi pada perancah yang diinkorporasi dengan PRP, PRF dan tanpa inkorporasi.
Metode Penelitian: Desain penelitian ini adalah penelitian klinis laboratoris menggunakan *pre test post test design.* Subjek penelitian yaitu perancah koral buatan. PRP di buat dengan menggunakan metode Matsui-Tabata. PRF di buat dengan menggunakan metode Choukroun dkk. Darah yang digunakan merupakan darah yang berasal dari manusia. Sebanyak 9 perancah dibagi menjadi 3 kelompok yaitu perancah dengan inkorporasi PRP, inkorporai PRF dan tanpa inkorporasi. Subjek penelitian direndam dalam PBS dan diinkubasi pada suhu 37^{o}. pengukuran profil degradasi dilakukan pada periode waktu 1, 3, 6, 24, 48, 72, dan 96 jam. Kemudian mengganti larutan PBS dengan HCl 1N dan diinkubasi pada suhu 37^{o}. pengukuran kembali profil degradasi pada periode waktu 1, 3, 6, 24, 48, 72, 96 jam hingga perancah habis terdegradasi.
Hasil Penelitian: Data hasil penelitian dianalisis menggunakan uji *One Way Anova* dan dilanjutkan dengan uji *Post Hoc* dengan *Tukey*. Hasil uji *One Way Anova* menunjukkan terdapat perbedaan bermakna ($p<0.05$) pada perendaman PBS periode waktu 1, 3, 6, 24, 48, 72, 96 jam dan perendaman HCl periode waktu 1 jam.
Kesimpulan: berdasarkan hasil penelitian ini terdapat perbedaan degradasi antara perancah dengan inkorporasi PRP, PRF dan tanpa inkorporasi. Penambahan PRP dapat memperkuat struktur dari perancah dengan pembentukan fibrin *network* sehingga dapat memperlambat proses degradasi.
Kata Kunci: Degradasi, *Platelet-rich Plasma, Platelet-rich Fibrin,* Perancah Koral Buatan.

ABSTRACT

THE DIFFERENCE BETWEEN THE ADDITION OF PLATELET-RICH PLASMA AND PLATELET-RICH FIBRIN TOWARD THE DEGRADATION PROFILE IN BONE REGENERATION SCAFFOLDING

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Background: Platelet-rich Plasma (PRP) is defined as concentrated platelet that consists of a great amount of growth factors. PRP has important role in bone recovery process. Platelet-rich Fibrin is the development of concentrated platelet that does not use anti coagulant. PRF is also called as leukocyte-PRF since it has anticipation character in tissue regeneration and wound recovery. PRP and PRF can be incorporated using scaffolding in engineering bone tissue. Scaffolding materials are insoluble or degradation in order that the release of growth factors in accord with bone tissue development process.
Research objective: The research aimed at learning the difference of degradation profile in the scaffolding incorporated with PRP, PRF, and without incorporation.
Research Method: The research design is clinical laboratory research using pre and post test design. The subject of the research is artificial coral scaffolding. PRP was made using Matsui-Tabata method. PRF was made using a method by Choukron et all. The blood used was human blood. 9 scaffoldings were divided into 3 groups; scaffolding with PRP incorporation, PRF incorporation, and without incorporation. The artificial coral scaffolding was soaked in PBS and was incubated with the temperature of $37^{o.}$ Degradation profile was measured after 1, 3, 6, 24, 48, 72, and 96 hours. PBS was then replaced with HC1 1N and was incubated with the temperature of 37^{o} . Degradation profile was measured again after 1, 3, 6, 24, 48, 72, 96 hours until the scaffolding was degraded until it ran out.
Research Result: The data of the research were analyzed using One Way Anova and continued with Post Hoc test using Tukey. The result of One Way Anova indicated that there was significant difference ($p<0.05$) in the soaking period of 1, 3, 6, 24, 48, 72, 96 hours and 1 hour period of HC1 soaking.
Conclusion: Based on the research, it is concluded that there was degradation difference between scaffolding with PRP incorporation, PRF incorporation, and without incorporation. PRP addition could strengthen the scaffolding structure with the development of fibrin network so that it could slow down the degradation process.

Keywords: Degradation, Platelet-rich Plasma, Platelet-rich Fibrin, Artificial Coral Scaffolding