Ekspresi osteopontin pada PDL cell sheet dengan RGD-modified chitosan dan PDL cell sheet dengan chitosan scaffold = Expression of osteopontin in cell sheet with RGD-modified chitosan and cell sheet with chitosan scaffold

Qaiszara Puspadewi, author

Abstrak

Latar Belakang: Terapi regeneratif jaringan periodontal pada kasus kerusakan tulang alveolar horizontal telah dilaporkan dapat meningkatkan perlekatan jaringan periodontal secara klinis. Tetapi, efek perawatan pada sintesis matriks ekstraseluler tulang belum diketahui. Osteopontin merupakan salah satu marker penanda tulang sehingga dapat digunakan dalam menganalisis keberhasilan regenerasi jaringan periodontal pascaterapi regeneratif.
Tujuan: Menganalisis ekspresi osteopontin pascaterapi regeneratif PDL cell sheet + RGD-modified chitosan dan PDL cell sheet + chitosan scaffold terhadap regenerasi jaringan periodontal.
Metode dan Bahan: Sampel penelitian adalah sediaan mikroskopik jaringan periodontal M.nemestrina yang telah ditanam bahan regeneratif PDL cell sheet + RGD-modified chitosan dan PDL cell sheet + chitosan scaffold selama empat minggu setelah perawatan. Sediaan diwarnai dengan metode imunohistokimia menggunakan antibodi osteopontin. Ekspresi osteopontin dianalisis area dan intensitas pewarnaannya dengan metode grid pada ImageJ, serta uji statistik menggunakan SPSS.
Hasil: Median area pewarnaan positif pada PDL cell sheet + RGD-modified chitosan 74,81% (53,48%-81,06%) lebih besar dari PDL cell sheet + chitosan scaffold 63,99% (52,43%-80,31%), namun tidak berbeda bermakna secara statistik pada kedua bahan tersebut (p >0,05). Median intensitas area pewarnaan positif lemah 43,05% (14,16%-61,52%), sedang 14,49% (6,70%-22,81%), dan kuat 17,82% (3,66%-20,20%) pada kelompok PDL cell sheet + RGD-modified chitosan lebih besar dibanding PDL cell sheet + chitosan scaffold, namun tidak berbeda bermakna secara statistik.
Kesimpulan: Ekspresi osteopontin lebih tinggi pada kelompok PDL cell sheet + RGD-modified chitosan dibanding kelompok PDL cell sheet + chitosan scaffold, meskipun kedua bahan tersebut tidak menunjukkan perbedaan bermakna secara statistik.
.....Background: Periodontal regenerative therapy in bone horizontal defect cases has been reported to increase clinical periodontal tissue attachment. However, the outcome treatment on the synthesis of bone extracellular matrix is unknown. Osteopontin is one of the bone markers that can be used in analyzing the effectiveness regeneration after periodontal regenerative therapy.
Objectives: To analyse osteopontin expression after periodontal regenerative therapy with PDL cell sheet + RGD-modified chitosan and PDL cell sheet + chitosan scaffold.
Methods and Materials: Specimen was used from M.nemestrina periodontal tissue that had been planted for four weeks after regenerative therapy with PDL cell sheet + RGD-modified chitosan and PDL cell sheet + chitosan scaffold.
Results: Median value of positive staining area in PDL cell sheet + RGD-modified chitosan with 74.81% (53.48%-81.06%) is greater than in PDL cell sheet + chitosan scaffold with 63.99% (52.43%-80.31%), and the two groups statistically showed no significant differences. Median value of positive staining intensity in

weak area 43.05% (14.16%-61.52%), moderate 14.49% (6.70%-22.81%), and strong 17.82% (3.66%-20.20%) in PDL cell sheet + RGD-modified chitosan is greater than PDL cell sheet + chitosan scaffold, but there were no significant differences between the two groups.
Conclusion: Regenerative therapy with PDL cell sheet + RGD-modified chitosan increased osteopontin expression higher than PDL cell sheet + chitosan scaffold, even though there were no significant differences between the two groups.