Potensi kombinasi kitosan arginylglycylaspartic acid dengan periodontal ligament cell sheet terhadap perlekatan jaringan periodontal klinis studi ex vivo pada macaca nemestrina dengan kerusakan tulang alveolar horizontal = Potential of combination of chitosan arginylglycylaspartic acid with periodontal ligament cell sheet on clinical periodontal attachment ex vivo study in macaca nemestrina with horizontal alveolar bone defect

Herlis Rahdewati, author

Abstrak

Latar belakang: Terapi regenerasi jaringan periodontal pada pola kerusakan tulang alveolar horizontal selama ini belum membuahkan hasil yang memuaskan. Terapi regenerasi memerlukan scaffold, sel punca, dan signaling molecules. Scaffold dalam terapi regenerasi salah satunya yaitu kitosan. Penambahan arginylglycylaspartic acid RGD pada kitosan membantu adhesi sel. Periodontal ligament PDL cell sheet membantu regenerasi periodontal.
Tujuan: Mengevaluasi efek kitosan, RGD, dan PDL cell sheet terhadap perlekatan jaringan periodontal klinis pada kerusakan tulang alveolar horizontal.
Metode dan Bahan: Model kerusakan tulang horizontal pada M. nemestrina dibuat dengan bur dan elastik ortodontik. Sampel dibagi empat kelompok n=8 : kitosan, kitosan RGD, kitosan PDL cell sheet, dan kitosan RGD PDL cell sheet. Peningkatan perlekatan jaringan periodontal klinis dievaluasi setelah empat minggu.
Hasil: Peningkatan perlekatan jaringan periodontal klinis kelompok kitosan RGD PDL cell sheet 3,00 0,756 mm lebih baik dibandingkan kitosan 1,75 0,707 mm dan kitosan RGD 2,13 0,835 mm.
Kesimpulan: Kelompok kitosan RGD PDL cell sheet berpotensi dapat meningkatan perlekatan jaringan periodontal klinis terbaik.
.....
Background: Periodontal regeneration therapy in horizontal bone defect has not been satisfactory yet. Tissue regeneration require scaffold, stem cells, and signaling molecule. One of scaffold that use in regenerative therapy is chitosan. Combination of chitosan with arginylglycylaspartic acid RGD has the ability to improve cell adhesion. Periodontal ligament PDL cell sheet has the ability to promote periodontal regeneration.
Objectives: Evaluate attachment gaining on clinical periodontal attachment using chitosan RGD, and PDL cell sheet in horizontal bone defect.
Material and Methods: The horizontal bone defect model of M. nemestrina was made using bur and orthodontic elastic. Regenerative therapy divided into four groups n 8 chitosan, chitosan RGD, chitosan PDL cell sheet, and chitosan RGD PDL cell sheet. Clinical periodontal attachment was evaluated after four weeks.
Results: Clinical periodontal attachment of chitosan RGD PDL cell sheet 3,00 0,756 mm was better than chitosan 1,75 0,707 mm and chitosan RGD 2,13 0,835 mm.
Conclusion: Chitosan RGD PDL cell sheet groups has the potential to increase clinical periodontal attachment.