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**The effect of mesenchymal stem cells application on bone quality during normal and rapid rate distraction osteogenesis (An experimental study)**

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Regenerate bone quality associated with Distraction Osteogenesis (DO) is one of the drawbacks associated with rapid distraction rate. Mesenchymal stem cells (MSCs) carries hope in improving bone regenerate quality. The purpose of this study was to investigate the effect of mesenchymal stem cell application in the improvement of bone quality of bone regenerate with rapid and normal rate distraction osteogenesis. This study was conducted on 28 goats equally divided into four groups. Group A: normal rate DO (1 mm/day) aided by MSCs, group B: rapid rate DO (2 mm/day) aided by MSCs, Group C: normal rate DO without MSCs and Group D: rapid rate DO without MSCs. All groups had 30 days of consolidation followed by sacrifice Samples were dissected from the animal cadavers to be assessed histologically by measuring trabecular bone thickness of H&E stained samples and osteoid bone percentage measurement of Masson Trichrome stained samples. Histomorphometric evaluation showed increase trabecular bone thickness in group A and group B with high statistical significance compared to group C and Group D. The osteoid percentage was higher in the mesenchymal stem cell treated samples with high statistical significance. MSCs application showed promising results in improving regenerate quality with normal and rapid distraction rates. MSCs application associated with rapid rate enhanced regenerate quality over the rapid rate alone. Higher percentage of osteoid has indicates rapid healing of mesenchymal stem cells treated groups. MSCs improved bone quality of regenerate and compensated the bad effect of rapid distraction.

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**Potential causes of crestal bone loss around dental implant**

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The longevity of dental implants is highly dependent on integration between implant components and oral tissues, including hard and soft tissues. Crestal bone loss around dental implants has been a subject of discussion in implant dentistry since its introduction. Many researches and design developments related to dental implants have sought to limit the amount of crestal bone loss. This presentation will discuss several possible causes for crestal bone loss around dental implants thus enables a better understanding of the phenomenon. It also highlights the changes which have taken place in the field of implantology in an attempt to preserve the crestal bone.

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