Osteogenic medium with bone healing properties: An experimental study

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Abstract

Objective The present study has been designed in vivo to evaluate the effects of osteogenic medium on healing of experimental critical bone defect in a rabbit model.

Design: Experimental study

Animals: Twenty New Zealand albino rabbits, 12 months old, of both sexes, weighing 2.0±0.5 kg, were used in this study.

Procedures: Approximately a 10 mm segmental defect was created in the mid portion of each radius as a critical size bone defect. In the osteogenic medium group (n=5) 1 ml osteogenic medium, in maintenance medium group (n=5) 1 ml maintenance medium and in normal saline group (n=5) 1 ml normal saline were injected in the defected area while the defects of the rabbits of the control group (n=5) were left empty. Radiological evaluation was done on the 1st day and then at the 2nd, 4th, 6th and 8th weeks post injury. Biomechanical and histopathological evaluations were done on 8th weeks post injury.

Results: The radiological, histological and biomechanical findings of the present study indicate a superior bone healing capability in the osteogenic and maintenance medium groups, by the end of 8 weeks post-surgery, in comparison to the normal saline and control groups.
Conclusion and Clinical Relevance: In conclusion this study demonstrated that the osteogenic medium and maintenance medium could promote bone regeneration in long bone defects better than the control group in rabbit model.

Key words: Osteogenic medium, Maintenance medium, Bone healing, Rabbit model

References:

