

Different preparation of Sodium-DNA for bone tissue regeneration

Barbara Buffoli¹, Massimo Albanese², Pier Francesco Nocini², Ramon Boninsegna¹, Guido Sancassani², Luigi Fabrizio Rodella¹

¹Section of Anatomy and Physiopathology, Department of Clinical and Experimental Sciences, University of Brescia, 25123 Brescia, Italy

²Section of Oral and Maxillofacial Surgery, Department of Surgery, University of Verona, Verona, Italy

Current strategies for bone tissue regeneration involve the use of a wide range of biomaterials and synthetic bone substitutes; among them, Sodium-DNA could represent a new chance considering its osteoinductive properties (Nakamura et al., 2000; Bowler et al., 2001; Guizzardi et al., 2003; Guizzardi et al., 2007). The aim of this study was to evaluate the regenerative properties of two different preparation of Sodium-DNA (paste or liquid form) in a rat calvarial defect model. The cranium of each rat was shaved and a skin incision from the naso-frontal area to the external occipital protuberance was performed. The skin and the subcutaneous tissues were reflected to expose the full extent of the calvaria. Full-thickness 5X8 mm bone skull defects were made on each parietal region using piezoelectric surgery. Bone defects were filled with Sodium-DNA (paste or liquid form, Veritas, Brescia, Italy) alone or mixed with Bio-Oss (Geistlich, Wolhusen, Switzerland). Histomorphometric evaluation of bone regeneration was performed at the end of the treatments. The data obtained showed a time-dependent active bone healing process; however, differences in the use of past or liquid form were evident. These results suggest that Sodium-DNA could be considered an active biomaterial in bone regeneration, but an adequate formulation to obtain a better regenerative efficacy is needed.

References

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Keywords

Sodium-DNA, bone regeneration, calvaria.