



USE OF NANOHYDROXYPATITE IN REGENERATIVE THERAPY IN DOGS AFFECTED BY PERIODONTOPATHY: PRELIMINARY RESULTS

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Nanosized ceramics may represent a promising class of bone graft substitutes due to their improved osseointegrative and osseoinductive properties. Nanohydroxyapatite binds itself to the bone and favours bone healing by stimulation of osteoblast activity (Singh et al., 2012). The present study aims to analyse the in vivo behaviour of nanohydroxyapatite and to assess its regenerative capacity in dogs affected by periodontal disease.

Twenty-eight dogs of different breeds, aged between 5 and 15 years, were employed in the study and were randomly subdivided into a control group and an experimental group. After clinical, instrumental and radiological examinations to estimate the severity of the disease, all the subjects underwent dental prophylaxis and a bioptic sample was taken. A histopathological examination of the periodontal tissues, in correspondence with teeth with periodontopathy ranging between grades II and III, followed. Regenerative therapy with applications of nanohydroxyapatite was administered only to the dogs of the experimental group. After a period of between 30 and 42 days, a further clinical, instrumental and radiological examination was carried out and a bioptic sample taken solely on the dogs whose histological examinations showed changes ascribable to periodontal disease.

The results of the histopathological examination demonstrated that the subjects belonging to the control group, who only underwent the dental prophylaxis, in no case showed any histopathological improvement. In 6 out of 14 cases, the situation remained stationary and in the remaining 8 there was a clear deterioration. On the contrary, all the dogs in the experimental group, who underwent dental prophylaxis together with the administration of nanohydroxyapatite, showed clear signs of improvement with respect to their initial condition. Furthermore, there was no sign of any inflammatory reaction in the areas which had been treated with nanohydroxyapatite.

In conclusion the study demonstrated the regenerative potential of nanohydroxyapatite in periodontal therapy. In fact, its use as a graft material has produced very satisfactory results, which have been supported without doubt by the histopathological examinations. Thus, nanohydroxyapatite represents a valid osteoconductive and osteoinductive graft product in dogs. However, more research is needed and it is, therefore, imperative to extend the case histories and further standardize diagnostic methods.

Singh VP, Nayak DG, Uppoor AS, Shah D: Clinical and radiographic evaluation of Nano-crystalline hydroxyapatite bone graft (Sybograf) in combination with bioresorbable collagen membrane (Periocol) in periodontal intrabony defects. *Dental Research Journal*, 2012; 9: 60-67.