Efficiency of xenografts with or without hyaluronic acid in a peri-implantitis surgery. Pilot study

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Abstract
The study was conducted at both Departments of Oral Surgery and Prosthodontics, Faculty of Dental Medicine, University of Belgrade (NCT05171582). The fourteen patients (mean age 51.23 ± 11.3) with a minimum of one or more early, moderate, and advanced stages of the peri-implant lesion were included in the study. All patients underwent the surgical and prosthetic phases. Clinical parameters including peri-implant probing depth (PPD), bleeding on probing (BOP), healing index (HI) score, keratinized tissue width (KTW), gingival thickness (GT), ISQ, radiography, and microbiological outcome were assessed 3 and 6 months postoperatively.

Methods and Materials
Material and Methods: The fourteen patients (mean age 51.23 ± 11.3) were randomly divided into two groups: test (T) and control (C). After mucoperiosteal flap elevation and granulation tissue removal, the implant surface was performed by means of titanium brushes and photodynamic therapy. The peri-implant bone defects were randomly treated with the bovine bone substitute or with HA. Afterwards, the dental matrix was placed over the grafts. Clinical parameters such as peri-implant probing depth (PPD), bleeding on probing (BOP), healing index (HI) score, keratinized tissue width (KTW), gingival thickness (GT), radiography, and microbiological outcome, and implant stability (ISQ) were assessed 3 and 6 months postoperatively. Samples for microbiological analyses were collected before treatment procedure, during a surgical procedure, and during follow-up periods.

Results: Peri-implantitis was diagnosed after 5.6 ± 3.1 years of implant loading around bone-level implants, mainly affecting the maxilla (83%) compared to the mandible. Compared to baseline, both groups showed statistically significant improvements in clinical, radiographic, and microbiological outcomes three and six months postoperatively (p < 0.05). The HI score better on the test group.

Surgical treatment phase
After mucoperiosteal flap elevation and granulation tissue removal, the implant surface was performed by means of titanium brushes and photodynamic therapy (HELBO). The peri-implant bone defects were randomly divided into test (T) and control (C) group. In the T group bone defects were treated with BBS with HA (Cerabone plus, Bottis, Germany), while in the C group, defects were treated with BBS without HA (Cerabone, Bottis, Germany). Afterwards, the dental matrix was placed over the grafts (Mucoderm, Bottis, Germany) and the second ISQ was measured respectively. Flap was reposition and sutured. Sutures were removed 14 days postoperatively.

Conclusion
A short-term pilot study found that hyaluronic acid combined with bovine bone substitute (BBS) improved clinical and radiographic outcomes. HA could reduce the signs of inflammation such as BOP, thus preventing bacterial recolonization.

References

Presented at
PO-94

CLINICAL RESEARCH – SURGERY

Background
The goal of the peri-implantitis surgical procedure is to stop disease progression allowing the tissue to repair. Different biologically active materials were combined as adjunctive with xenografts in order to achieve successful outcomes in regenerative surgical peri-implant therapy. Hyaluronic acid (HA) was merged with a bovine bone substitute (BBS) in order to overcome the lack of osteoinductive and osteogenic properties of xenografts trying to promote the process of osteogenesis. The pilot study aimed to assess clinical, microbiological, and radiography outcomes three and six months following regenerative surgical therapy of peri-implantitis lesion using either BBS with or without hyaluronic acid (HA) combined with collagen dermal matrix.

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