**660.** (268) **EFFECTS OF THE ADDITION OF TERIPARATIDE TO A BOVINE BONE GRAFTING MATERIAL ON THE REPAIR OF CRITICAL-SIZED BONE DEFECTS IN RATS. PRELIMINARY RESULTS**

Pellegrini G[1,2], Bonanno MS[1,5], Zeni Coronel EM[1], Orzuza R[4], Avendaño ME[1,3], Zeni SN[1]

*[1]Laboratory of Metabolic Osteopathies. Institute of Immunology, Genetics and Metabolism (INIGEM), CONICET, School of Pharmacy and Biochemistry (FFyB), Buenos Aires University (UBA); [2]Division of Periodontics, Columbia University, College of Dental Medicine; [3]Diagnostic Imaging I, School of Dentistry, UNCuyo; [4]Department of General Biochemistry and Oral Biology, FOUBA; [5]Department of Histology and Embryology, FOUBA.*

We previously determined the osteoconductive effect of a bovine bone graft manufactured in Argentina [Synergy Bone Matrix, Odontit Implant Systems, Argentina (SBM)], on the bone healing process in an experimental model in rats. Several studies have shown that intermittently administered PTH has an anabolic effect on cancellous and cortical bone. On these bases, we hypothesized that the addition of the synthetic PTH analog, Teriparatide (TPT), to SBM could accelerate bone regeneration. The aim of the present experimental study was to evaluate if the addition of TPT to SBM presents any additional beneficial effect versus the use of SBM alone. Thirty adult male Wistar rats of 333±39.22 (n=6/group) and a critical-size bone defect (CSD) was created in the medial aspect of both tibiae. All CSDs received one of the following treatments for 30 days: G1: control without treatment; G2: SBM (Lot No: E11121216); G3: SBM mixed with 20 μg of T (Osteofortil, BioSidus, Argentina); G4: injection of 0.125 μg/day of TPT and G5: SBM mixed with 20 μg of TPT and SC injection of 0.125 μg/day of the same drug. The animals were sacrificed 45 days after the beginning of the experiment. We analyzed serum PTH, P1NP and CTX (ELISA). At the end of the study, the tibiae were evaluated with X-ray microtomography (μCT). Serum PTH levels (pg/mL) at the end of the study were 4.6±1.2a; 11.3±2.3b; 16.4±0.7c; 17.9±0.8c and 19.1±0.5c, respectively, P1NP levels (pg/L) at the end of the study were 2.24±0.24a; 2.63±0.16c; 2.54±0.37c; 2.43±0.41b; 2.48±0.45b; respectively. Preliminary μCT results showed: G1 no bone defect repair; G2: poor repair; G3: repair; G4: overgrowth of bone tissue around the bone callus and G5: repair without bone overgrowth. Our findings showed that the addition of TPT to SBM mixture accelerated the bone repair process while the daily injection did not produce any additional improvement in the bone regeneration exerted by SBM.