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Influence of cisplatin chemotherapy on osseointegration of titanium implants

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With the increasing prevalence of cancer cases around the world and the widespread use of titanium implants in oral rehabilitation, it is inevitable that in some cases these treatments take place concurrently. The purpose of this study was to evaluate, by comparative histological analysis, the peri-implant bone repair in animals submitted to cisplatin administration. Sixty rats (*Wistar*) undergone surgical procedure to install titanium implants (2.2 mm x 4 mm) on their right tibia. The alveoli were prepared using a cutter (2mm) attached to a surgical motor (45N, 980 rpm) under constant irrigation. After surgery the animals were set into two experimental groups (n=30): Group SS – received sodium chloride 0,9% at 15 and 17 days postoperative; Group CIS – Group: cisplatin delivered via intraperitoneal in two doses, 5 mg/kg and 2,5 mg/kg, at 15 and 17 days postoperative respectively. At 22, 30 and 60 days after installation the animals were euthanized. The collected tibiae were submitted to histological processing, followed by histological analysis of the following parameters: nature and degree of inflammation; extension of inflammatory process; presence and extension of tissue necrosis; presence, extension and nature from bone resorption; state of vasculature; cellularity pattern and structure of the bone extracellular matrix, connective and hematopoietic tissues. The bone neoformation at peri-implant region showed clearly lower on group CIS at all experimental periods. At 22 and 30 days postoperative was still observed persistence of inflammation in some specimens from group CIS. The cellularity pattern and the bone extracellular matrix structure were similar in both groups and periods. In conclusion, cisplatin impairs peri-implant bone healing, consequently the osseointegration process.

Descriptors: Chemotherapy; Dental Implant; Bone repair.

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