

Osseointegration can be modified by local and systemic factors. Administration of bisphosphonates has known effects on bone tissue remodeling. Objective: To study the effect of Pamidronate and Alendronate on peri-implant bone repair in rat tibia. Materials and Methods: 12 male Wistar rats of  $160\text{ g} \pm 20\text{ g}$  body weight. Under IP anesthesia with ketamine / xylazine solution  $8\text{ mg} / 1.28\text{ mg}$  respectively for each  $100\text{ g}$  of body weight,  $2 \times 1\text{ mm}$  Titanium cylindrical implants were placed in both tibia. They were divided in 3 groups of 4 each, a weekly dose was applied subcutaneously post surgery in the sector close to the surgical intervention, group SF control Physiological Solution  $0.3\text{ml} / 100\text{gr}$ , PA group: Pamidronate  $06\text{mg} / \text{kg}$ , group AL Alendronate  $05\text{mg} / \text{kg}$ . Experimental times were 15 and 30 days post-surgery. Euthanasia was performed by intracardiac injection of potassium chloride, under general anesthesia. The tibias were resected, fixed in formaldehyde buffer. Images of each specimen were obtained by means of a radiovisiograph, were analyzed determining the extension of the radiopaque area from the surface of the implant (Pro Plus v.4.52). Longitudinal wear cuts were performed on the tibia implant included in methyl methacrylate. Peri-implant bone tissue area was determined. Results: The histological evaluation determined the presence of laminar bone tissue in the three groups evaluated at 15 and 30 days. No statistically significant differences were found in relation to the extent of the radiopaque area between groups and times (15 days SF:  $0.45 \pm 0.16\text{ mm}$ , AL:  $0.76 \pm 0.20\text{ mm}$ , PA:  $0.78 \pm 0.21\text{ mm}$  / 30 days SF:  $0.76 \pm 0.18\text{ Mm}$ , AL:  $1.03 \pm 0.25\text{ mm}$ , PA:  $0.85 \pm 0.20\text{mm}$   $p > 0.05$ ). No statistically significant differences were found in the area of peri-implanted bone tissue (15 days SF:  $78435 \pm 30355\mu\text{m}^2$ , AL:  $42067 \pm 25022\mu\text{m}^2$ , PA:  $40841 \pm 2940\mu\text{m}^2$  / 30 days SF:  $56650 \pm 25047\mu\text{m}^2$ , AL:  $49424 \pm 8537\mu\text{m}^2$ , PA:  $33301 \pm 11114\mu\text{m}^2$   $p > 0.05$ ). Conclusion: there was no evidence of alterations in the peri-implant bone repair before the administration of AL and PA in the model used. In future studies the percentage of bone tissue in contact with the surface of the implant will be evaluated.