Electrotherapy for bone regeneration in dental implants [Electroterapia para la regeneración ósea de implantes dentales]

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Osseointegration has been optimized in the last years; differents technologies has been applied to improve this condition. The aim of this research is to understand the relationship between the application of electric charges and their ability to improve osseointegration in an animal model. Sixteen New Zealand white male rabbits, 3 to 6 months of age, were divided into two groups. In both was inserted a 4 titanium implants designed for this research, two on each tibia; compression techniques was conducted for to install the implant. In the experimental group electric charges at the level of lower limbs was applied for 30 minutes per day; the euthanasia of the animals was performed at 21 and 42 days, at which time was obtained the measurement of the retirement torque with a manual torque wrench; subsequently, the blocks with implants were removed and processed with routine histological techniques with hematoxylin and eosin; a descriptive observation was performed by optical microscopy and the numerical results were analyzed by analysis of variance and then using the F test with a significance level of 5%. The results showed significant differences in removal torque of implants at 21 and 42 days; no significant differences between the control group and the experimental group were observed; Histologically, no differences in elements disposition or other histological repair conditions were observed. It can be concluded that the administration of electric charges in this experimental model does not contribute to the formation of perimplant bone tissue.

Bone regeneration

Dental implant

Osseointegration