



Low Level Laser Therapy & Osteoporosis clinical research

IOF World Congress on Osteoporosis

December 3-7, 2008

Bangkok, Thailand

P204TH. The effects of the low level laser therapy on tibial bone consolidation in osteopenic rats

Renno ACM¹, Fangel R², Bossini PS², Driusso P², Parizotto N², Oishi J²; ¹Federal University of Sao paulo, Santos, Sao Paulo, Brazil, ²Federal University of Sao Carlos, Sao Carlos, Sao Paulo, Brazil

Million of fractures occurs every year worldwide due to a reduced bone mass related to osteoporosis. Many of them termed in non-union fractures. In this context, a lot of methods for treating delayed and non-union fractures have been investigated including low level laser therapy (LLT). Some studies have shown this treatment is able to stimulate the osteogenesis of bone tissue. Therefore, the aim of this study was to investigate the effects of the 830nm laser on tibial bone consolidation in osteopenic rats.

Methodology: It was used 50 female osteopenic rats, divided into 4 groups: standard control (SC), osteopenic fractured control (OC); osteopenic fractured treated with 830nm laser, on the fluence of 60 J/cm² (OL60); osteopenic fractured treated 830nm laser, on the fluence of 120J/cm² (OL120). We used a GaAlAs laser, 830 nm, 100 mW, in two different fluencies: 60 and 120 J/cm². The laser treatment was performed during 12 sessions. On day 14 after the surgery, the animals were euthanized and the right tibias were defleshed and prepared for a biomechanical test (maximum load: ML).

Statistical analysis: data were expressed as mean and statistical differences were determined with the ANOVA test for unpaired data.

Results: The mean ML showed by the control fractured group was statistically significant lower compared to the other groups (mean: 0.006 N). Fractured animals treated with both fluencies of laser presented higher values of ML compared to the fractured controls but the mean ML was lower compared to SC (means: fluence of 60 J/cm²: 0.098; fluence of 120 J/cm²: 0.089). Animals treated with Biosilicate® showed higher values of ML compared to the SC group (mean: 0.129).

Conclusion: LLT was effective to improve callus bone strength of tibial defects in osteopenic rats, in both fluencies used. The results of this work may suggest that the laser therapy has an osteogenic effect and it is efficient to accelerate bone consolidation and to increase callus strength in osteopenic rats.

Qlaser Wellness Solutions
Michael F. Lagana, President
708 Route 35 N., Neptune, NJ 07753
732 866-4226
Michael@Qlaserws.com