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Insulin treatment prevent muscle atrophy after severe burn injury in *Wistar* rats

Hananiah Tardivo Quintana, Vivianne Izabelle de Araújo Baptista, Mariana Cruz Lazzrin and **Flavia de Oliveira**
Federal University of São Paulo, Brazil

Burn injuries in children are among the greatest epidemiological problems in the world. Those above 40% of the total body surface area are considered extensive and are associated with hypermetabolism and skeletal muscle catabolism. Insulin administration can reverse catabolism and stimulate protein synthesis. Thus, the objective of this study was to evaluate the insulin treatment in the morphology and expression of genes related to muscular atrophy of young *Wistar* rats after burn injury. After approval by CEUA-UNIFESP (4857080514), 64 male *Wistar* rats, with 21 days of life, were distributed in groups control (C) and submitted to burn injury (B). Post-injury, the animals received daily insulin treatment (CI and BI) and simulation of treatment with saline solution (C and B). Euthanasia occurred at 4 days after injury and gastrocnemius muscle was dissected for histopathological, morphometric and gene expression MuRF1 (linked muscle atrophy)/MAFbx (linked proteic synthesis). ANOVA was used with two factors (group and treatment) for statistics. Histopathological results evidenced alterations in the injured animals when compared to the Controls. It was also observed the presence of new myofibers of small cell profile area and fibers with a centralized nucleus in the animals that received insulin treatment. Insulin treatment promoted decrease of cell profile area in CI and BI. BI group increased MuRF1 and MAFbx when compared to C group, but insulin treatment prevented an increase of this gene. It is concluded that the treatment with insulin-induced the formation of myofibers and prevents muscle atrophy.

Biography

Hananiah Tardivo Quintana is a Postdoctoral student at the Federal University of São Carlos, phD (2018) and a Master degree (2014) in Health Sciences from the Federal University of São Paulo and she did her degree in Nursing from the Federal University of São Carlos (2011). Actually works in morphology, molecular and cellular biology and biomaterials for burn injuries.

hananiah@hotmail.com

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