ISAKOS

International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine

10th Biennial ISAKOS Congress • June 7-11, 2015 • Lyon, France

Paper #122

Histological Comparison of Fibrosis, Following Skeletal Muscle Laceration, with use of Losartan, Hydrocortisone or Acetylsalicylic Acid

Otavio De Melo Silva Jr., Prof, BRAZIL
Luiz Ronaldo Alberti, PhD, BRAZIL
Savio Lana Siqueira, PhD, BRAZIL
Tchalton Amador Corrêa, MD, BRAZIL
Laurice Barbosa, Student, BRAZIL
Marilia Fontenelle Silva, Student, BRAZIL
Iure Kalinine Ferraz De Souza, PhD, BRAZIL
Cristiana Buzzelin Nunes, PhD, BRAZIL

University of Ouro Preto
Ouro Preto, MG, BRAZIL

Summary:
The healing of skeletal muscle laceration in Fischer rats has showed less fibrous scar tissue formation when exposed to losartan, than when compared to the control group or the use of hydrocortisone.

Abstract:
INTRODUCTION
Skeletal muscle injuries are responsible for a large number of complaints in patients victims of trauma. Muscle plasticity is determined by several factors such as length and type of injury, and the capacity of regeneration is limited. The healing process after a muscle injury can lead to the formation of fibrosis that replaces normal striated muscle. The literature is limited regarding studies involving the use of non-steroidal anti-inflammatory or glucocorticoids to therapeutic responses for the treatment of muscle injuries. The aim of this study was to analyze the ability to inhibit fibrous scar tissue with the use of losartan, hydrocortisone and acetylsalicylic acid (ASA).

METHODOLOGY
The model of muscle laceration in 120 Fischer rats was chosen. They were divided into four groups of 30 animals each: control group; losartan group; ASA group; hydrocortisone group. The animals were anesthetized and subsequently a lengthwise incision of 1 inch in length in the left paravertebral thoracolumbar region was performed, an injury grade III was made by using hemostatic clamp Kelly for 60 seconds and finally they were cut with scissors. The skin was sutured with 3-0 nylon monofilament. The animals were divided into groups of 5 per cage, with plenty of food and water. The losartan group received losartan diluted in water at a dose of 0.1 mg / ml (dose 10 mg / kg / day), The ASA group received an ASA solution of 3 mg / ml (dose 300 mg / kg / day), the hydrocortisone group received hydrocortisone solution of 0.05 mg / mL (dose 5 mg / kg / day).

RESULTS
The control group, losartan, aspirin and hydrocortisone showed 0.95 ± 0.35mm, 0.55 ± 0,34mm, 0.93 ± 0.33mm, 0.66 ± 0.36mm respectively of fibrotic area. A significant lower fibrotic area of the losartan group compared to the control group ($p = 0.01$) and hydrocortisone ($p = 0.01$) was noticed. There were no significant differences among the other groups.

CONCLUSION
The healing of skeletal muscle produced less fibrous scar tissue when exposed to losartan, than when compared to the control group or the use of hydrocortisone.