

# **Direct Spinal Ventral Root Repair following Avulsion: Effectiveness of a New Heterologous Fibrin Sealant on Motoneuron Survival and Regeneration.**

Authors: De Castro M.V., Barbizan R., Ferreira R.S., Barraviera B., De Oliveira A.L.R.

Publication Date: 2016

## **Abstract:**

Axonal injuries at the interface between central and peripheral nervous system, such as ventral root avulsion (VRA), induce important degenerative processes, mostly resulting in neuronal and motor function loss. In the present work, we have compared two different fibrin sealants, one derived from human blood and another derived from animal blood and *Crotalus durissus terrificus* venom, as a promising treatment for this type of injury. Lewis rats were submitted to VRA (L4-L6) and had the avulsed roots reimplanted to the surface of the spinal cord, with the aid of fibrin sealant. The spinal cords were processed to evaluate neuronal survival, synaptic stability, and glial reactivity, 4 and 12 weeks after lesion. Sciatic nerves were processed to investigate Schwann cell activity by p 75 NTR expression (4 weeks after surgery) and to count myelinated axons and morphometric evaluation (12 weeks after surgery). Walking track test was used to evaluate gait recovery, up to 12 weeks. The results indicate that both fibrin sealants are similarly efficient. However, the snake-derived fibrin glue is a potentially safer alternative for being a biological and biodegradable product which does not contain human blood derivatives. Therefore, the venom glue can be a useful tool for the scientific community due to its advantages and variety of applications.

Copyright © 2016 Mateus Vidigal de Castro et al.