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Animal Models of Spinal Cord Injury

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Abstract

Spinal cord injury (SCI) leads to a significant health problem associated with a broad range of secondary complications and disabilities. In this regard, animal models can help us to understand the pathobiology of SCI and evaluate the effects of potential treatments for SCI. In contusion models of SCI, different devices including surgical spring-loaded clips, balloons, forceps, weights and the computer-controlled reproducible impact contusion devices were used to create a defined lesion in the spinal cord. To evaluate treatments that target axon regeneration or in case of implantations, transection models may be utilized in which an incision is created into spinal cord. The transection may be complete or incomplete. The unilateral hemisection injury can be a good alternative to complete transection in which structural integrity, function of one side of the spinal cord and bladder and bowel function were preserved. By choosing an appropriate SCI method, we can test numerous possibilities for novel therapeutic strategies before clinical investigations.

Keywords: Spinal Cord Injury, Animal Models, Therapeutic Strategies.

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