Repair and Regeneration of the Injured Spinal Cord: Opportunities for Clinical Translation of Basic Discoveries

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Despite a prevailing pessimism that attaining effective treatments for spinal cord injury (SCI) is a “pipedream” , there is now a realistic potential that meaningful advances are imminent. The past two decades have witnessed significant advances in biomedical research directed at minimizing the impact of secondary injury and promoting neural regeneration. This talk will review the application of this enhanced knowledge in the context of several ongoing or planned clinical trials of potentially key clinical or translational importance including: the STASCIS trial, which is examining the impact of early surgical decompression; a planned clinical trial which will evaluate the neuroprotective efficacyof the sodium/ glutamate antagonist riluzole; and the Cethrin trial of a recombinant Rho inhibitor to reduce cell death and enhance neural regeneration(Baptiste and Fehlings, 2006, 2007; Rossignol et al., 2007). In addition, late-stage preclinical studies focusing on neural stem based remyelination strategies and ZFP-VEGF gene therapy will be briefly reviewed given the strong translational potential of these approaches(Karimi-Abdolrezaee et al., 2006; Eftekharpour et al., 2007). Finally, the potential impact of clinical trials networks in facilitating this translational research will be briefly discussed.

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