When Do We Start Basso, Beattie, and Bresnahan Assessment After Experimental Spinal Cord Injury?

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We read the paper of Roozbehi *et al.* (1) with great interest. They showed improved functional recovery and more motor neuron preserved histopathologically in rats which had received cyclosporine injection 15 minutes after hemisection of their spinal cord rather than those which did not receive cyclosporine; they even seem slightly better than those that started cyclosporine 24 hours after spinal cord injury (SCI). However, we would have a concern about functional recovery.

Although charts that show the behavior of animals and neurological condition started 7 days after SCI might be acceptable, but it is not ideal. It is recommended to show the neurological situation of rats one day after injury or even normal behavioral assessment before injury. On the day after SCI, rats can be evaluated; anesthesia effect has been removed and the standard starting day for Basso, Beattie, and Bresnahan (BBB) assessment is possible (2-4). This suggestion is true for any kind of injury (complete transection or hemisection) in any animal (rat or mice) (5) or even human (6-8). The importance of demonstration of first, second or even third day BBB is showing the severity of injury, because BBB of zero is in favor of severe injury. Early evaluation also shows homogeneity or heterogeneity of injury in all animals, which in homogenous severe injury BBB ± standard deviation would be 0 ± 0. Therefore, researchers can exclude rats with incomplete damage. Another benefit of very early demonstration of BBB or any behavioral assessment is its help to show when maximum functional recovery happens and when it is plateau; as we have shown, between the second and third weeks, maximum improvement occurs and if there is no motor function after the third week in rats, we do not expect to see any new motor function (2). Tail-flick reflex which is pinching rat tail is an easy test which has a significant role in prognosis. If a rat with lower thoracic injury does not have tail-flick reflex, it will not have motor recovery at all (3).

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