Olfactory Ensheathing Cells (OEC) plus fibroblast growth factor (a-FGF) and fibrin glue (FG) implantation in a model of transected spinal cord in adult rats.

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Abstract:

The olfactory system is well known as one of the places where neurogenesis in the nervous system takes place in adult mammals. Different studies of spinal cordlesions report how the use of these cells has been found to help with axonal regeneration and mobility improvement. Bulb and Laminar olfactory cells, combined with a-FGF and FG, from male adult rats with spinal cords transection lesions were used in this study where three groups are compared: a control one, another where only cells were transplanted and a third one where the cells combined with a-FGF and FG were transplanted and signs of locomotor functional recovery were examined using the Basso Bresnahan and Beattie (BBB) scale, adding the analysis of the track left on paper in each walk. Results obtained from the BBB scale show that the combination of ensheathing olfactory cells and a-FGF plus FG significantly improves (12.50 +/- 3.51) the locomotors function when compared with the other experimental groups. (OEC: 6.75 +/- 0.957 and a-FGF plusFG: 6.00 +/- 1.414). Histological cuts suggest a reconnection of the two ends of the transection. The study confirms that olfactory ensheathing cells improve functional locomotor recovery in paraplegic rats and suggests that a-FGF plus FG can increase the effect of these cells, possibly because they stimulate cellular proliferation. The results of the combination of olfactory ensheathing cells and a-FGF plus FG as a therapeutic strategy.