

Challenges to overcome human chronic spinal cord injury : the scar, the best cells and the best rehabilitation

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Significant advances made in basic research in the last years are being translated into novel clinical approaches using transplantation of stem and other cells types for severe and chronic spinal cord injury (SCI) a condition which was thought to be irreversible and hopeless for patients.. The olfactory mucosa is the only part of the adult nervous system capable of lifelong neurogenesis and axogenesis that is readily assessable with minimally invasive techniques.. It was considered that olfactory mucosa tissue transplanted into the lesions of SCI would mimic and promote neurogenesis and axogenesis and a human pilot olfactory mucosa autograft (OMA) in severe, chronic traumatic SCI study approved by the Ethical Committee begun at the CHLO- Hospital Egas Moniz in Lisbon, Portugal in July 2001. Improvements in movements and/or sensation as well as bladder and bowel control were seen and the first study was published (The Journal of Spinal Cord Medicine Volume 29 Number 3 2006). Additional studies of the safety and follow-up efficacy using olfactory mucosal autografts (OMA) and complemented with overground gait training (BIONT) directed rehabilitation program in further patients with chronic, sensorimotor complete or motor complete SCI were also recently published (Neurorehabil Neural Repair, Jan 2010; 24: 10 – 22). The necessity to handle and overcome the scar at the lesion site is also emphasized as well as the best cells and best rehabilitation to produce recovery results (Neurorehabil and Neural Repair. Jan 2010; 24(1) 7–9)