Transplantation of fetalkidney cells: neuroprotection and neuroregeneration

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摘要

Abstract

Various trophic factors in the transforming growth factor-beta (TGF-beta) superfamily have been reported to have neuroprotective and neuroregenerative effects. Intracerebral administration of glial cell line-derived neurotrophic factor (GDNF) or bone morphogenetic proteins (BMPs), both members of the TGF-beta family, reduce ischemia- or 6-hydroxydopamine (6-OHDA)-induced injury in adult rat brain. Because BMPs and GDNF are highly expressed in fetal kidney cells, transplantation of fetal kidney tissue could serve as a cellular reservoir for such molecules and protect against neuronal injury induced by ischemia, neurotoxins, or reactive oxygen species. In this review, we discuss preclinical evidence for the efficacy of fetal kidney cell transplantation in neuroprotection and regeneration models.