Mesencephalic astrocyte derived neurotrophic factor

Mesencephalic astrocyte derived neurotrophic factor (MANF) is a 20kDa human protein which has both neuroprotection and neurorestoration activity on dopaminergic neurons and therefore may have application for the treatment of Parkinson's Disease.

The aim of a study were to determine the translational potential of convection-enhanced delivery (CED) of MANF for the treatment of PD by studying its distribution in porcine putamen and substantia nigra and to correlate histological distribution with co-infused gadolinium-DTPA using real-time magnetic resonance imaging. Barua et al. describe the distribution of MANF in porcine putamen and substantia nigra using an implantable CED catheter system using co-infused gadolinium-DTPA to allow real-time MRI tracking of infusate distribution. The distribution of gadolinium-DTPA on MRI correlated well with immunohistochemical analysis of MANF distribution. Volumetric analysis of MANF IHC staining indicated a volume of infusion (Vi) to volume of distribution (Vd) ratio of 3 in putamen and 2 in substantia nigra. This study confirms the translational potential of CED of MANF as a novel treatment strategy in PD and also supports the co-infusion of gadolinium as a proxy measure of MANF distribution in future clinical studies. Further study is required to determine the optimum infusion regime, flow rate and frequency of infusions in human trials [1].

Member

Conserved dopamine neurotrophic factor

[1]

Barua NU, Bienemann AS, Woolley M, Wyatt MJ, Johnson D, Lewis O, Irving C, Pritchard G, Gill S. Convection-enhanced delivery of MANF - Volume of distribution analysis in porcine putamen and substantia nigra. J Neurol Sci. 2015 Aug 6. pii: S0022-510X(15)00477-3. doi: 10.1016/j.jns.2015.08.003. [Epub ahead of print] PubMed PMID: 26276514.