NEUROPROTECTIVE EFFECT OF ATORVASTATIN IN PARKINSON'S DISEASE

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Introduction: Neuroinflammation and oxidative damage plays an important role in the pathogenesis of Parkinson's disease (PD). Mounting evidence suggests that statins can confer neuroprotection in Parkinson's brain by attenuating leukocyte adhesion and inhibiting the induction of various inflammatory mediators such as Tumor necrosis factor (TNF-α), C-reactive protein e.t.c.

Aim: The objective of the study was to examine the anti-Parkinson's effect of Atorvastatin in MPTP (1-methyl-4-phenyl-1, 2, 3, 6-tetrahydro pyridine) lesioned rat model.

Methods: Rats were injected with MPTP with the help of steotling stereotaxic apparatus (USA) to induce Parkinsonism in Wistar rats. PD rats were treated with Atorvastatin (5mg/kg body weight, dissolved in saline) i.p. for 30 days. Catecholamines: dopamine (DA), 3, 4-dihydroxy-phenylacetic acid (DOPAC); Antioxidants: glutathione (GSH) and glutathione peroxidase (GPx); Homocysteine; Glutamate; 3-nitrotyrosine; TNF-α were analyzed in the treated and untreated PD rats striatum.

Results: Rats treated with MPTP showed reduced levels of DA, DOPAC, GSH, GPx and increased levels of Homocysteine when compared to the control. Physiological abnormalities in the rats were determined by stereotypy and rotarod test. Intra-peritoneal treatment of PD rats with Atorvastatin (5mg/kg body weight) for 30 days showed improved motor function as determined by stereotypy and rotarod test, increased DA, DOPAC, glutamate, GSH, GPx levels, decreased levels of Homocysteine and TNF-α when compared to the untreated PD rats striatum.

Conclusion: Here we suggest that, Atorvastatin can be further studied in Preclinical and Clinical level for the treatment of PD.