

Herbals & Natural Remedies

October 26-27, 2015 Chicago, USA

Morus alba ameliorates developmental defects of cervical spinal cord in maternally diabetic and aluminum intoxicated rat pups

Gamal Badawy

Menoufiya University, Egypt

Objective: To investigate the possible ameliorative effect of crude water extract of *Morus alba* leaves on developmental defects of cervical spinal cord in 14 days rat pups maternally subjected to diabetes and/or Al intoxication.

Materials and Methods: Seventy fertile male and virgin female rats were used. The pregnant rats were arranged into seven groups and their pups were sacrificed at 14 days old. Cervical spinal cord was separated and subjected for light and TEM examination as well as DNA fragmentation.

Results: At the histological level, the central canal appeared congested with marked hyperplasia of their ependymal cells in pups of diabetic mother. Edematous lesions were detected within neuronal cells of the grey matter. Different cytopathological alterations including vacuolation, pyknosis and chromatolysis of neuronal cells were detected. However, pups maternally diabetic and received *Morus alba* extract showed marked amelioration of the histological structure including arrangement of ependymal cells and improvement of multipolar motor neuronal cells. At TEM level, an increase of nuclei with clumped chromatin material and irregular nuclear envelope was evident. The RER become vesiculated and disrupted throughout the cytoplasm. The mitochondria appeared swollen and degenerated. White matter possessed variable reduction of demyelinated axons. Vacuolation of myelinated axons and edematous lesions were detected. Highest amelioration was detected in those of diabetic mother treated with *Morus alba* comparing with the other experimental groups. Neuronal cells of both diabetic and/or Al intoxicated mothers possessed genomic DNA fragmentation. Highest incidence of genomic DNA fragmentation was markedly increased in pups of Al intoxicated mothers alone or in combination with diabetes. On the other hand pups of mother received *Morus alba* besides either Al intoxication and/or diabetes revealed resolution of DNA damage.

Conclusion: The present study proved that *Morus alba* leaves extract has an ameliorative effect against developmental defects of cervical spinal cord.

gamaibadawy940@yahoo.com

Evaluation of memory restorative potential of forskolin in High Fat Diet (HFD) induced dementia in rats: Probable role of PXR receptors

Jaspreet Kaur, Rupinder K Sodhi and Upendra K Jain

University of West Kordofan, Sudant

The present study was designed to investigate the potential of *Coleus forskohlii* plant extract- 'forskolin' in experimental dementia in Wistar rats. Dementia was induced by the administration of High Fat Diet (HFD) for 90 days. The effects on learning and memory were assessed using Morris Water Maze (MWM) test. A battery of biochemical tests such as brain Thiobarbituric Acid Reactive Species (TBARS), reduced Glutathione (GSH), Superoxide Dismutase (SOD), brain Acetylcholinesterase (AChE) activity, Myeloperoxidase (MPO) activity and total serum cholesterol levels were measured. Administration of high fat diet significantly impaired the learning and memory and also deleteriously affected the biochemical parameters. Administration of forskolin (20 mg/kg, p.o.) for 14 days significantly attenuated high fat diet induced memory deficits and the biochemical alterations. Combined administration of forskolin and Pregnane X Receptor (PXR) antagonist, ketoconazole (25 mg/kg, p.o.) significantly reduced the beneficial effects of forskolin in HFD treated rats. This study demonstrates that improvement of memory by forskolin administration may occur as an outcome of its antioxidative, anticholinergic, anti-inflammatory, hypolipidemic and amyloid lowering potential. The study also proposes the possible involvement of pregnane X receptors in the pathophysiology of experimental dementia.

kaurjaspreet067@gmail.com