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

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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 & 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.

Biography

Gamal Metwally Ibrahim Badawy is a graduate of Birmingham University, UK, in 2003. Currently, he is an Associate Professor of Anatomy and Embryology in the Department Zoology, Faculty of Science, at Menoufiya University, Egypt. He has published more than 20 papers and abstracts in reputed journals. He is serving as a Reviewer for six journals.

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