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Muscle derived myokines and fundamentals of the antidepressant action of voluntary exercise

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The study investigated the impact of voluntary exercise on; depressive behavior, serum and hippocampal levels of myokines and hippocampal formation of rats. After developing depression, the depressed rats were allowed to voluntary wheels for 3 weeks to study; the locomotor activities through forced swimming test, the serum and hippocampal levels of myokines through ELISA and the hippocampal structure and neuronal count. Voluntary exercise produced significant increase in the distance moved by rats and significant decrease of the immobility duration, also, significant increase of serum and hippocampal brain-derived neurotrophic factor and macrophage migration inhibitory factor, significant increase of the hippocampal vascular endothelial growth factor and significant decrease of serum interleukin 6. Significant correlations were detected between serum levels of brain-derived neurotrophic factor and that of macrophage migration inhibitory factor and interleukin 6, whereas hippocampal levels of this myokin was correlated with that of macrophage migration inhibitory factor and vascular endothelial growth factor. The hippocampal formation showed preserved neurons and well-formed dendritic extensions with significantly decreased number of degenerated neurons in hippocampal areas, and significantly increased number of the healthy neurons in the upper limb of dentate gyrus. The study proved the improving effect of voluntary exercise on depressed behavior in rats. It demonstrated the relation of myokines to the development and/or relief of depression and the correlation of serum and hippocampal myokines levels. Interest should be given for diagnosing and treating depression using myokines and to study the specified parts of hippocampal formation that could respond differently to treatment.

Biography

Magda Ahmed Mohamed Eldomiaty has completed her PhD from Tanta University and Post-doctoral studies from Tanta University College of Medicine Egypt. She is Prof. of Anatomy and Embryology in Taibah University Saudi Arabia, Tanta University Egypt. She is international reviewer in many international journals. She has published more than 25 papers in reputed journals and has been serving as an Editorial Board Member of *Edorium Journal of Anatomy and Embryology.*

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