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Preventive role of gabapentin in transmission of inflammatory nociception in acute and sub-chronic inflammatory models of rat

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Nociception can trigger an increase the expression of different genes and their product that can mediate or modulate nociception related changes in the brain. There are number of experimental model of inflammatory pain provide evidence that nociception result in increased expression of early immediate genes, c-Fos that is associated with hyper neuronal activity. It has also been proven that GABA, an amino acid neurotransmitter, can involve in inhibitory control of nociception and mediate sensory inputs at the spinal cord level. GABA itself has effect on the expression of certain genes including c-Fos in different disease conditions such as seizures. The present study was designed to investigate the effect of GABApentin, an analogue of GABA, on the expression of c-Fos in carrageenan induced-acute inflammation. Our results have been shown that in animal receiving only carrageenan, there was a marked increase in the expression of c-Fos gene and its protein c-Fos in different brain areas with different intensity. In contrast, GABApentin treatment has potency to inhibit the expression of c-Fos gene and c-Fos protein in inflammation. Gabapentin also prevented the development of other pain related behaviors, such as paw withdrawal latency responses; we observed that pain scores were not statistically different from baseline. This study suggest that modulating the neurotransmission of nociception can suppress effectively the level of nociception associated with acute inflammation with reduce side effect associated with the extended use of conventional anti-inflammatory drugs.

Biography

Huma Jawed has completed her PhD in Pharmacology (2013) from Hussain Ebrahim Jamal Research Institute of Chemistry, University of Karachi, Pakistan. She has obtained her Master's degree from Department of Biochemistry, University of Karachi (2004). She is working as an Assistant Professor at Mohammad Ali Jinnah University, Karachi. During her doctoral dissertation, she gains hands-on experience in conducting different biochemical and molecular biology techniques including RT-PCR, Immunohistochemistry, ELISA and Electrophoresis. Her research interest field includes cellular and molecular biology, biochemical pharmacology, inflammation and immunology. She has 10 publications in reputed journals and has been serving as an Editorial Board Member of reputed journals.

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