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Unilateral intra-hippocampal thalidomide attenuates apoptotic and inflammatory sequelae of global cerebral ischemia in rats

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Apoptotic and inflammatory events are usually implicated in brain Ischemia Reperfusion (IR) and are therefore considered as potential targets for treatment. Thalidomide (TH) has a well-documented anti-inflammatory effect by inhibiting TNF- α which is also a major player during the (IR) mechanistic work-up. Therefore, the current study aimed at investigating the possible neuro-protective effects of intra-hippocampally injected (TH) in an (IR) model in rats induced by bilateral carotid occlusion for 45 min, followed by 24 h reperfusion. (IR) resulted in significant memory impairment paralleled with a clear motor incoordination as well as an enhanced locomotor activity and an apparent histo-pathological damage. The latter effects were dwindled by the unilateral intra-hippocampal injection of (TH). Moreover, IR induced an upsurge in TNF- α and its downstream mediator nuclear factor (NF)- κ B, brain-derived neurotropic factor (BDNF), caspase-3, and iNOS; which were all mitigated by intra-hippocampally injected (TH). On the other hand the reductions in IL-10 and nNOS levels induced by IR were ameliorated by (TH) treatment. Henceforth, the current study results suggest a possible protective role of the centrally administered (TH) in IR injury with a conceivable connotation of both apoptotic and inflammatory pathways.

Biography

Dr. Nassar is an Associate Professor of Pharmacology and Toxicology, Faculty of Pharmacy, Cairo University. She has 20 refereed scientific papers in addition to many poster and talks at international conventions. Her research findings have been published in top journals and have received fair citations. Dr. Nassar's research interests focus on signaling mechanisms and mediators implicated in neurodegenerative diseases as well as those involved in neural regulation of circulation. In addition to her contributions to research, Dr. Nassar has been active as a member of many scientific societies for the past 10 years including The American Society for Pharmacology and Experimental Therapeutics, and Society for Neuroscience and has served as a reviewer for a number of scientific journals.

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