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Anti-inflammatory potential of N-Nitro-L-Arginine-Methylester in cerebral injury induced by transient *ischemia*/reperfusion in rats

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Background: The role of nitric oxide (NO) inhibition in cerebral ischemia/reperfusion (I/R) remains uncertain; we previously reported an anti-oxidant effect of nonselective nitric oxide synthase (NOS) inhibitor N-Nitro-L-Arginine-Methylester (L-NAME) on rats subjected to transient focal cerebral I/R. The aim of this work was to the explored further potential anti-inflammatory effect of L-NAME.

Materials and Methods: The study involved 30 adult male Wistar rats divided into three groups 10 rats in each: First group was sham-operated (control), I/R group of rats infused with 0.9% normal saline intraperitoneally 30 minutes prior to 30 minutes of left common carotid artery (CCA) occlusion followed by 24-hours of reperfusion and test group infused with L-NAME (15 mg/ kg per weight) intraperitoneally 15 minutes prior to the same I/R period. Neurobehavioral assessments were evaluated using six clinical tests, Western blotting was used to estimate Nuclear factor kappa B (NF- κ B), Tumor necrosis factor- α (TNF- α) using ELISA and NO metabolites (nitrite and nitrate), were measured colorimetrically in both plasma and affected cerebral hemisphere.

Results: L-NAME pretreated rats illustrated a significant improvement in behavioral and neurological outputs. Moreover, it significantly reduced the inflammatory biomarkers NF- κ B, TNF- α and NO decreased (P ≤0.001).

Conclusions: L-NAME significantly improve neurological deficit and showed a potential neuroprotection through it is an antiinflammatory effect in a rat's model of transient focal cerebral ischemia-reperfusion.

Biography

Hiba A Awooda is an Assistant Professor at the Department of Physiology, Faculty of Medicine. She successfully completed her master and PhD in the field of neurophysiology from Alexandria University (2011) and Al Neelain University (2013) respectively. As well as Master of medical education from the University of Khartoum. She teaches physiology to undergraduate medical, dental, physiotherapy and nurse students. She is also a researcher with interest in developing biomarkers that are used in the treatment of acute ischemic stroke. She has published more than 20 papers in reputed journals.

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