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SCORPION VENOM-INDUCED NEUROINFLAMMATORY RESPONSE: IMPACT ON THE SEVERITY OF ENVENOMATION

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The central nervous system (CNS) was originally ruled out as a site of action for scorpion venom, however, neurological manifestations like convulsion are commonly observed after scorpion stings, especially in young children. Scorpion venom components stimulate the neuro-endocrino-immunological axes inducing the activation of an inflammatory response. In this study, we have tested the neuroinflammatory response after an injection of *Androctonus australis hector* (Aah) venom to 7, 21 postnatal days (pnd) and adult mice by subcutaneous route. Our results showed that Aah venom stimulation lead to a stronger neuroinflammatory response in immature mice, characterized by an important leukocyte activation and migration from the circulation to the cerebral tissue. Oxidative stress markers nitric oxide (NO) and malondialdehyde (MDA) were significantly higher in cerebral tissue of 7 and 21 pnd when compared to adult mice. An increase in reduced glutathione (GSH) and catalase levels after 1 and 3 h post envenomation was observed in adult and 21 pnd mice in comparison to the control groups. A significant decrease of antioxidant markers was observed in new borne mice. One hour after envenomation, the immature mice (7 and 21 pnd) revealed alterations in cerebral tissue characterized mainly by hemorrhage and diffuse edema that were more severe than those observed in adult mice. The results show that Aah venom is able to act on the CNS inducing alterations that could be involved in scorpion envenomation severity and high mortality especially in children. More studies in this field are necessary to develop new therapeutic approach taking into consideration the effect of the scorpion venom on the central nervous system.

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