TÍTULO

THE HIV-1 GP120 NEUROTOXICITY ASSOCIATED TO NEUROPATHIC PAIN

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RESUMO

The current work emphasizes the revision of the role of gp120 in brain neurotoxicity and the mechanisms to neuropathic pain development. HIV gp120 is present on the surface of the viral envelope and contributes directly to induction of neuropathic pain in rodents when administrated peripherally or centrally. The mechanism of HIV gp120 induced-pain and also neurological diseases generations seems include spinal gliosis and the release of inflammatory cytokines. HIV gp120 plays a role in the virus entry in the cells by binding CD4, CXCR or CXCR5 receptors, produces neurotoxicity in human neurons, and its pathogenic potential was demonstrated in many studies which evaluates the intact brain by inducing the expression of gp120. Induction and maintenance of pathological pain in animals and intrathecal administration of gp120 can cause mechanical allodynia which is clearly associated with an increase in proinflammatory release and this event is causal to pain enhancement because gp120- induced allodynia is diminished by inhibitors of IL-1β, TNF-α and IL-6. Gp120 is also responsible for synergistic neurotoxicity with glutamate and at low doses can stimulate the production of cytokines from uninfected microglia and astrocytes. The apoptosis mechanism after gp120 exposure is related to an increase of Ca+ which initiate several molecular events and activation of messengers that active programmed cells death being also a consequence from the activation of NMDA receptors. The present work indicated evidences of connections between neuroinflammation, cell apoptosis and neurodegeneration established by gp120 are important for neuropathic pain development. However further studies are needed to better explain the mechanisms involved.