عنوان مقاله:

Differential pathogenesis of intracerebral and intramuscular inoculation of street rabies virus and CVS-۱۱ strains in a mouse model

محل انتشار:

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خلاصه مقاله:

Objective(s): The mechanisms of rabies evasion and immunological interactions with the host defense have not been completely elucidated. Here, we evaluated the dynamic changes in the number of astrocytes, microglial and neuronal cells in the brain following intramuscular (IM) and intracerebral (IC) inoculations of street rabies virus (SRV).Materials and Methods: The SRV isolated from a jackal and CVS-۱۱ were used to establish infection in NMRI-female mice. The number of astrocytes (by expression of GFAP), microglial (by Iba۱), and neuronal cells (by MAP-۲) in the brain following IM and IC inoculations of SRV were evaluated by immunohistochemistry and H & E staining ۷ to ۳۰ days post-infection.Results: Increased numbers of astrocytes and microglial cells in dead mice infected by SRV via both IC and IM routes were recorded. The number of neuronal cells in surviving mice was decreased only in IC-infected mice, while in the dead group, this number was decreased by both routes.The risk of death in SRV-infected mice was approximately ۳ times higher than in the CVS-۱۱ group. In IC-inoculated mice, viral dilution was the only influential factor in mortality, while the type of strain demonstrated a significant impact on the mortality rate in IM inoculations.Conclusion: Our results suggested that microglial cells and their inflammatory cytokines may not contribute to the neuroprotection and recovery in surviving mice following intracerebral inoculation of SRV. An unexpected decrease in MAP۲ expression via intramuscular inoculation indicates the imbalance in the integrity and stability of neuronal cytoskeleton which aggravates rabies infection.

کلمات کلیدی:
Astrocyte, Intracerebral, Intramuscular, Microglia cells, Neurons, Street rabies virus