

Hypothermia in acute ischemic stroke

Neuroprotection of hypothermia in acute ischemic stroke is well documented. However, the mechanisms involved in the effects remain to be clearly elucidated and the role of hypothermia on long-term white matter integrity after acute ischemic stroke has yet to be investigated.

Mild focal hypothermia treatment immediately after ischemic stroke significantly promotes WM integrity 28 days after middle cerebral artery occlusion (MCAO) in mice. Higher integrity of white matter, lower activation of total microglia, less infarct volume, and better neurobehavioral function were detected in hypothermia-treated mice compared to normothermia-treated mice. Furthermore, Liu et al. found that hypothermia could decrease detrimental M1 phenotype microglia and promote healthy M2 phenotype microglia. In vitro, results also indicated that hypothermia promoted oligodendrocytes differentiation and maturation after oxygen glucose deprivation.

Hypothermia promotes long-term WM integrity and inhibits neuroinflammation in a mouse model of ischemic brain injury ¹⁾.

¹⁾

Liu LQ, Liu XR, Zhao JY, Yan F, Wang RL, Wen SH, Wang L, Luo YM, Ji XM. Brain-selective mild hypothermia promotes long-term white matter integrity after ischemic stroke in mice. CNS Neurosci Ther. 2018 Sep 16. doi: 10.1111/cns.13061. [Epub ahead of print] PubMed PMID: 30295998.

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