

Protective Effects of Curcumin Against Ischemia-Reperfusion Injury in the Nervous System

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Ischemia-reperfusion injury (I/R injury) is a common feature of ischemic stroke which occurs when blood supply is restored after a period of ischemia. Although stroke is an important cause of death in the world, effective therapeutic strategies aiming at improving neurological outcomes in this disease are lacking. Various studies have suggested the involvement of different mechanisms in the pathogenesis of I/R injury in the nervous system. These mechanisms include oxidative stress, platelet adhesion and aggregation, leukocyte infiltration, complement activation, blood-brain barrier (BBB) disruption, and mitochondria-mediated mechanisms. Curcumin, an active ingredient of turmeric, can affect all these pathways and exert neuroprotective activity culminating in the amelioration of I/R injury in the nervous system. In this review, we discuss the protective effects of curcumin against I/R injury in the nervous system and highlight the studies that have linked biological functions of curcumin and I/R injury improvement. © 2018, Springer Science+Business Media, LLC, part of Springer Nature.

Central nervous system

Curcumin

Ischemia-reperfusion injury

Neuroprotection

curcumin

curcumin

neuroprotective agent

antiapoptotic activity

antiinflammatory activity

antioxidant activity

blood brain barrier

brain injury

cerebrovascular accident

drug mechanism

endoplasmic reticulum

endoplasmic reticulum stress

human

inflammation

mitochondrial biogenesis

nervous system

nervous system ischemia reperfusion injury

nervous system ischemia reperfusion injury

neuroprotection

nonhuman

oxidative stress

reperfusion injury

Review

spinal cord injury

animal

brain ischemia

chemically induced

disease model

drug effect

metabolism

pathology

reperfusion injury

Animals

Brain Ischemia

Curcumin

Disease Models, Animal

Humans

Nervous System

Neuroprotective Agents

Reperfusion Injury