Cardamonin

Cardamonin is a chalcone with neuroprotective activity.

Cardamonin seems to alleviate cerebral vasospasms after SAH. These effects may involve the inhibition of p-AKT, C-myc expression and apoptosis, and the increase of α-SMA expression [1].

The aim of a study of Niet al. was to explore the functions and mechanism of action of cardamonin in ischemic stroke. Oxygen-glucose deprivation and reperfusion (OGD/R)-induced human brain microvascular endothelial cells (HBMECs) and middle cerebral artery occlusion (MCAO) mouse model were utilized to mimic ischemic stroke. Cell viability was analyzed by 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl-2H-tetrazolium bromide. Permeability was investigated via fluorescein isothiocyanate-dextran assay. Apoptosis was detected by TdT-Mediated dUTP Nick End Labeling staining. Hypoxia-inducible factor HIF1A and vascular endothelial growth factor A (VEGFA) protein levels were measured using Western blotting. Brain injury was evaluated by 2,3,5-triphenyltetrazolium chloride staining, neurological score, and brain water content. The 37 overlapping targets of ischemic stroke and cardamonin were predicted to be associated with the HIF-1/VEGFA signaling. Cardamonin alleviated OGD/R-induced viability reduction and increase of permeability and apoptosis in HBMECs. Cardamonin increased OGD/R-induced activation of the HIF-1α/VEGFA pathway. Inhibition of the HIF-1α/VEGFA signaling using inhibitor relieved the effect of cardamonin on cell viability, permeability and apoptosis in HBMECs under OGD/R. Cardamonin mitigated brain injury and promoted activation of the HIF-1α/VEGFA signaling in MCAO-treated mice. Overall, cardamonin protected against OGD/R-induced HBMEC damage and MACO-induced brain injury through activating the HIF-1α/VEGFA pathway [2]

1)
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2)
Ni H, Li J, Zheng J, Zhou B. Cardamonin attenuates cerebral ischemia/reperfusion injury by activating the HIF-1α/VEGFA pathway. Phytother Res. 2022 Feb 10. doi: 10.1002/ptr.7409. Epub ahead of print. PMID: 35142404.