

The Neuroprotective Activities of the Sam-Hwang-Sa-Shim-Tang in the Transient Ischemic Model in Rats.

Min Sun Kim, Young Sun Hwang, and Jong Hoon Ryu
College of Pharmacy, Kyung Hee University, Seoul, Korea

ABSTRACT

Sam-Hwang-Sa-Shim-Tang(SHSST), a traditional Chinese medicine, composed of Rhei rhizoma, Scutellaria radix, and Coptidis rhizoma were used in the several disease including hypertension, constipation, and hemorrhage. In the present study, we investigated the neuroprotective effects of SHSST and its ingredients on the ischemia/ reperfusion-induced brain injury was evaluated in the rat brain. Ischemia was induced by intraluminal occlusion of the right middle cerebral artery for 120 min and reperfusion was continued for 22 h. SHSST (450 mg/kg), Rhei rhizoma (100 mg/kg), Coptidis rhizoma (100 mg/kg), and Scutellaria radix (100 mg/kg) were orally administered twice, promptly prior to reperfusion and 2 h after the reperfusion. Total infarction volume in the ipsilateral hemisphere of ischemia/ reperfusion rats was significantly lowered by the treatments of SHSST (39.2%) and Scutellaria radix (66.5%). However, Coptidis rhizoma did not show any significant effects on the total infarct volume. The inhibiting effect of Scutellaria radix on the total infarct volume was more potent than that of SHSST. In addition, Scutellaria radix significantly inhibited myeloperoxidase (MPO) activity, an index of neutrophil infiltration in ischemic brain tissue. However, there was marked mismatch between total infarct volume and MPO activity in the Scutellaria radix-treated rats. Our findings suggest that Scutellaria radix as an ingredient of SHSST plays a protective role in ischemia-induced brain injury by inhibiting neutrophil infiltration. The effects of Rhei rhizoma on transient brain ischemia-induced neuronal injury are under study.