Cattle encephalon glycoside and ignotin injection

Cattle encephalon glycoside and ignotin (CEGI) injection (drug approval H22025046; Jilin Sihuan Pharmaceutical Co. LTD., Jilin, People's Republic of China) was approved by the Chinese Food and Drug Administration in 2011. It is estimated that a 1-ml CEGI injection contains 3.2 mg polypeptides, 0.24 mg monosialotetrahexosyl ganglioside (GM-1), 1.65 mg free amino acids, 0.925 mg total nitrogen, and 12 µg hypoxanthine. In China, CEGI injection is widely used in the treatment of central and peripheral nerve injuries, such as Alzheimer's disease, neonatal hypoxic ischemic encephalopathy, and diabetic peripheral neuropathy, with a high safety margin and few side effects [1].

A study of Ma et al., from the Department of Neurosurgery, Southwest Hospital, Third Military Medical University (Army Medical University), Chongqing, China, explores a potential treatment for cognitive dysfunction following SAH with the demonstration that multi-target drug Cattle encephalon glycoside and ignotin injection (CEGI) can relieve cognitive disorder by decreasing hippocampal neuron apoptosis following SAH in rats. Experimentally, 110 male SD rats were separated at random into Sham (20), SAH+Vehicle (30), SAH+4ml/kg CEGI (30), and SAH+1ml/kg CEGI groups (30) and an endovascular perforation model was created to induce SAH. We discovered that the number of TUNEL positive neurons in the hippocampus was markedly decreased in SAH+4ml/kg and SAH+1ml/kg CEGI groups compared to the SAH+Vehicle group. This finding was associated with an observed decrease in Bax/Bcl2 ratio, cytochrome-c and PUMA expression, and the suppression of caspase 3 activation following SAH. In Morris water maze tests, the SAH+4ml/kg CEGI group demonstrated a decreased escape latency time and increase in time spent in the target quadrant as well as crossing times of platform region. These results indicate that high doses of CEGI can decrease hippocampal neuron apoptosis and relieve cognitive dysfunction in rats, suggesting that multitarget-drug CEGI exhibits neuroprotection in SAH via the mitochondrial apoptosis pathway [2].

1)
Gao, Y. et al. Cattle encephalon glycoside and ignotin injection improves cognitive impairment in APPswe/PS1dE9 mice used as multitarget anti-Alzheimer's drug candidates. Neuropsychiatr Dis Treat 11, p. 537–548 (2015).
2)
Ma K, Li R, Zhao H, Qu J, Mu N, Liu X, Wang S, Yang C, Feng H, Tan L, Li F. Cattle Encephalon Glycoside and Ignotin Reduce Early Brain Injury and Cognitive Dysfunction after Subarachnoid Hemorrhage in Rats. Neuroscience. 2018 Jul 20. pii: S0306-4522(18)30497-4. doi: 10.1016/j.neuroscience.2018.07.022. [Epub ahead of print] PubMed PMID: 30036663.