Ginseng May Help with Brain Health After Stroke

By Greg Arnold, DC, CSCS, January 23, 2011, abstracted from “Ginsenoside Rb1 regulates the expressions of brain-derived neurotrophic factor and caspase-3 and induces neurogenesis in rats with experimental cerebral ischemia” in the Journal of Ethnopharmacology

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Stroke is the third leading cause of death in Americans, with 795,000 strokes expected to occur in 2010, causing about 137,000 deaths. Stroke is expected to cost our healthcare system $73.7 billion in 2010. While 55,000 more women than men have a stroke each year, African Americans have almost twice the risk of first-ever stroke compared with whites (1).

Stroke damages the brain by causing a clot in the blood vessels carrying oxygen and nutrients to certain part of the brain, an event called “cerebral ischemia”. Now a new study in mice (2) has suggested that Ginseng may help lessen the damaging effects on brain cells after cerebral ischemia. In the study, researchers induced cerebral ischemia in 70 mice for 2 hours, after which blood circulation was restored. The mice were then given either saline (control group) or an active component in Ginseng called Ginsenoside Rb1 (GRb1) in doses of 40 mg per kg of bodyweight.

Brain tissue was obtained either hours (3 or 12 hours) or days (1, 2, 3, 5, and 10 days) after administering the ginseng component/control. The mice then underwent neurological testing and had brain tissue samples obtained to see if any nerves were regenerated by measuring levels of a protein called nestin (3) and another protein called BDNF, which has been shown to reduce cell death and clot volume (4).

While there was no significant differences between the two groups in the neurological test scoring, those in the ginseng group had significantly greater nestin-positive cells, with all ginseng groups having at least double the nestin-positive cells compared to the control group, indicating much greater nerve regeneration after the blockage. When looking at BDNF levels, those in the ginseng group had 35% greater levels at 3 hours which gradually increased to 60% at 10 days. These BDNF levels are important since previous research has shown that “BDNF is strongly involved in neurological recovery after cerebral ischemia” (5).

For the researchers, “Promotion of the [nerve regeneration] and regulation of the expressions of BDNF…may be involved in GRb1-induced neuroprotection against cerebral ischemia.”

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