Positive effects of Hydrogen in treating Ischemic Brain Injury

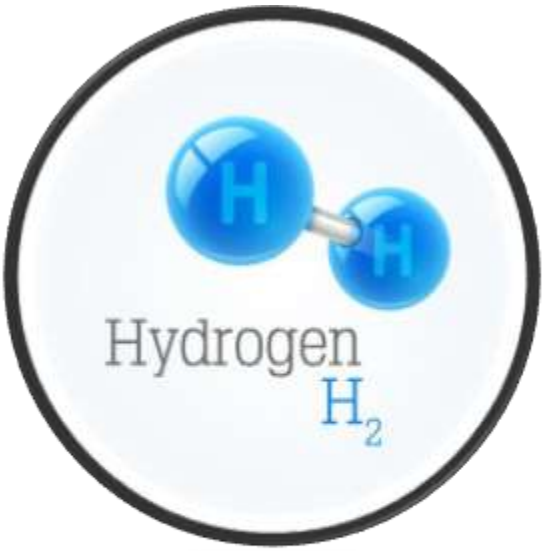
KYK Hydrogen Water | 1,500 PPB of DH | KYK Co., Ltd. (South Korea)

Brain ischemia is a condition in which there is insufficient blood flow to the brain to meet metabolic demand. This leads to poor oxygen supply or cerebral hypoxia and thus to the death of brain tissue or cerebral infarction / ischemic stroke. The main symptoms involve impairments in vision, body movement, and speaking. An interruption of blood flow to the brain for more than 10 seconds causes unconsciousness, and an interruption in flow for more than a few minutes generally results in irreversible brain damage.

- How Hydrogen works?

Studies have found that H_2 prevents ischemic brain damage. Studies have reported that inhalation of 2% H_2 gas strongly suppressed infarct volume after middle cerebral artery ischemia–reperfusion. In an Electron Spin Resonance (ESR) study,

they showed that H_2 had hydroxyl radical scavenging activity. Hydroxynonenal (HNE) and 8-hydroxy-2'-deoxyguanosine (8-OHdG) immune reactivity was suppressed in the damaged brain after treatment with 2% H_2. H_2 inhalation reduced ischemic damage and hemorrhagic volume after transient middle cerebral artery occlusion (MCAO) ischemia. Free radical generation after ischemia induces matrix metalloproteinase (MMP) expression. MMP-9 promotes hemorrhagic infarction by disrupting cerebral vessels. H_2 inhalation has been found to reduce MMP-9 expression. H_2 also has a neuroprotective effect against global ischemia. Cerebral hypoxia–ischemia and neonatal asphyxia are major causes of brain damage in neonates. H_2 gas inhalation and H_2-rich saline injection provide early neuroprotection from neonatal neurological damage. A study also reported that that an H_2-enriched intravenous solution is safe for patients with acute cerebral infarction, including patients treated with tissue plasminogen activator (t-PA) therapy.



Metabolic syndrome is a strong risk factor of stroke. It has been reported that H_2 therapy can improve metabolic syndrome in basic and clinical settings. H_2 therapy may reduce stroke in patients with metabolic syndrome involving diabetes mellitus.