Hydrogen Sulfide Ameliorates Hearing Loss during Ischemic Stroke

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Known as the third leading cause of death in the United States, cerebrovascular ischemic stroke leads to over 100,000 deaths per year. Furthermore, stroke causes long-term disabilities, one of which is hearing impairment. However, there has not been enough research conducted to determine the specific molecules that result in the loss of hearing observed after the onset of cerebrovascular stroke. Using Western blot analysis and Microvascular permeability, the pathway of stroke was determined. Hearing loss was confirmed using Auditory brain stem response. Cerebral ischemia causes oxidative stress which activates matrix metallaproteinases (MMP-9) and leads to auditory cortex damage. This, in turn, causes neuronal damage which causes hearing loss. Hydrogen Sulfide, neuroprotector, antioxidative, and anti-inflammatory agent, was tested to see if it ameliorated the effects of hearing loss in strokes. Interestingly, it reduced the effects in ischemic stroke treated for a week. In conclusion, hydrogen sulfide could be a therapeutic medicine and explored more to carry forward for clinical testings.

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