Increasing glutathione levels lowers Alzheimer's pathology and improves cognitive decline

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Australian researchers have shown that a dietary supplement that increases the levels of a powerful antioxidant in the brain may represent

a novel strategy for the treatment and/or prevention of cognitive impairment and debilitating neurodegenerative diseases such as Alzheimer's disease.

Findings of the study were recently published in *Neurochemistry International*.

A team of researchers from UNSW Sydney's Centre for Healthy Brain Ageing (CHeBA), and the School of Biotechnology and Biomolecular Sciences (BABS), has shown that dietary supplementation with glutathione precursor γ-glutamylcysteine (γ-GC), marketed as GlyteineTM, reduced oxidative stress, neuroinflammation and amyloid pathology in the brains of transgenic mice, a murine model to study Alzheimer's disease. The study also found significant cognitive improvements in the mice as determined using the Morris water maze, a test often used to test memory in mice.

The study identifies for the first time that γ-GC as a glutathione-elevating strategy in an Alzheimer's disease mouse model and is likely to have clinical relevance.

Lead author and Leader of CHeBA's Brain Ageing Research Laboratory, Dr. Nady Braidy, said: "Cellular depletion of glutathione has been linked to cognitive decline and the development of Alzheimer's pathology. Supplementation with γ-GC can transiently augment cellular glutathione levels by bypassing the regulation of glutathione homeostasis."

More information: Yue Liu et al. Supplementation with γ-glutamylcysteine (γ-GC) lessens oxidative stress, brain inflammation and amyloid pathology and improves spatial memory in a murine model of AD, *Neurochemistry International* (2020). DOI: 10.1016/j.neuint.2020.104931

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