The Effect of Sleeve Gastrectomy on Progression of Alzheimer's Disease

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Alzheimer's disease (AD) is a neurodegenerative disease characterized by impaired memory and accumulation of amyloid-beta (Aß) plaque in the brain. Type 2 diabetes is a risk factor for developing Alzheimer's, as Alzheimer's is linked to abnormal glucose metabolism in the brain and increased insulin resistance. Previous studies have found that bariatric surgery leads to the relief and prevention of type 2 diabetes. This understanding along with the fact that Alzheimer's is also associated with increased insulin resistance, leads to the hypothesis that bariatric surgery could prevent Alzheimer's disease. This work examines the effect of sleeve gastrectomy (SG) in 5xFAD Alzheimer’s model mice, on both cognitive function and histological marker expressions in the brain. In this research, we compared the results of behavioral tests and accumulation of Aß plaques in Alzheimer’s model mice who underwent SG with those of model Alzheimer’s model mice that did not undergo gastric bypass surgery. The results show that bariatric surgery, in contrary to the hypothesis, exacerbated the cognitive activity of the Alzheimer's model mice, and there was an increased expression of Aß plaques . These findings constitute a new and innovative hypothesis regarding another potential risk factor for Alzheimer's and contribute to a deeper understanding of the disease mechanism.

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