

Administration of Vitamins (A₁, B₁, B₆) prevent a Parkinson's Disease Symptom

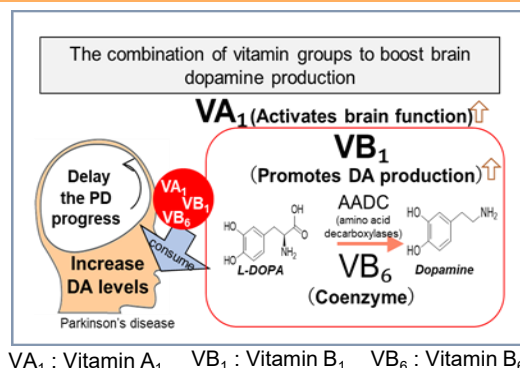
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Introduction

Parkinson's disease (PD) is a neurodegenerative disorder that causes movement disorders due to the degeneration of dopaminergic neurons. While symptomatic treatment with L-DOPA is the primary therapy, motor complications become problematic with long-term use. Vitamins are not only essential nutrients but also possess antioxidant and neuroprotective effects, suggesting potential for nutritional intervention in neurodegenerative diseases.



Aim Investigation the effects of combined administration of VA₁, VB₁, and VB₆ on catecholamine metabolism and neural activity in a mouse model of PD

Conclusion

- Co-administration of vitamins A₁, B₁, and B₆ maintained dopamine metabolism in the striatum and suppressed the progression of motor symptoms in a Parkinson's disease mouse model.
- These results suggest that **vitamin complex administration may exert neuroprotective and functional recovery effects** against PD by regulating neural activity.

Result

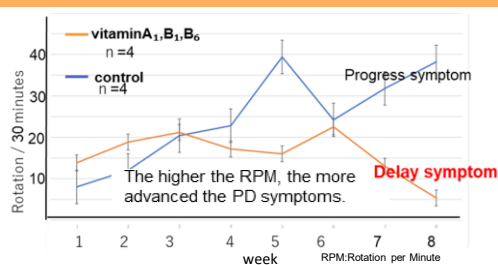


figure.1 Apomorphine-induced rotation counts

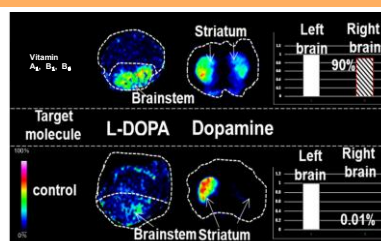


figure.2 IMS analysis of dopamine distribution in mouse brain

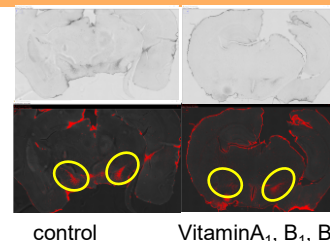


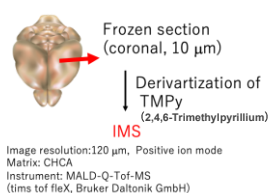
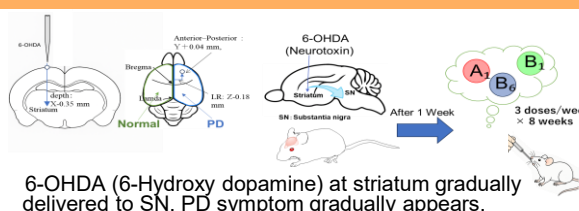
figure.3 Tyrosine hydroxylase staining of the substantia nigra

The vitamin group showed significantly fewer rotations over time, indicating **delayed PD progression**

Dopamine was clearly detected in the right striatum (PD side) of vitamin-treated mice

IMS: Imaging mass spectrometry

Experiment



References



S. Taira H. Shikano, A. Ikeda, Y. Sugiura, H. Shikano, S. Kobayashi, T. Terauchi and J. Yokoyama, 'Pyrilium based derivatization imaging mass spectrometer revealed the localization of L-DOPA' *Plos One* 17 e0271697