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Antidepressant-like effects of medicinal herb extract in a chronic stress mouse model of depression

Mi Young Lee

Korea Institute of Oriental Medicine, South Korea

Statement of the Problem & Aim: Major depression is a common psychiatric disorder that is often caused by stress-induced dysfunction of the Hypothalamic-Pituitary-Adrenal (HPA) axis. The aim of this study was to assess the antidepressant-like effects of medicinal herb extract and to investigate its possible molecular mechanisms.

Methodology & Theoretical Orientation: Using an animal model of chronic restraint stress, we investigated the effects of medicinal herb extract on depressive-like behaviors, and the expression levels of serotonin, corticosterone and neurotrophic factors in the hippocampus. Mice were exposed to restraint stress for 2 hours per day over a period of three weeks. They were orally treated with medicinal herb extract (100, 200, or 400 mg/kg/day).

Findings: Administration of medicinal herb extract not only reduced the immobility times of restraint-stressed mice in the forced swimming and tail suspension tests, but also significantly increased sucrose preference in the sucrose preference test. Medicinal herb extract also significantly reduced serum levels of corticosterone and increased serotonin levels in the serum. It also increased the ratio of phosphorylated cyclic adenosine monophosphate response element-binding protein (pCREB) to CREB (pCREB/CREB) and the expression of brain-derived neurotrophic factor.

Conclusion & Significance: Taken together, our data suggest that medicinal herb extract may have potential as an antidepressant to control depressive behaviors and the expression of neurotrophic factors in chronic stress.

Biography

Mi Young Lee earned her PhD from Konkuk University in South Korea. Her research focuses on the standardization and development of medicinal herbs for more than 20 years. She is the Project Manager of the study on the anti-depressive effects of Korean traditional medicine. She has published more than 50 papers in reputed journals.

mylee@kiom.re.kr

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