Zhou Xidan et a., J Neurol Neurophysiol 2017, 8:5 (Suppl)
DOI: 10.4172/2155-9562-C1-056

The identification of psychotropic effects of the aqueous extract of *Lilii bulbus* in a menopausal ovariectomized mouse model

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Lilii bulbus (Bai-He in Chinese), has been commonly used for the treatment of mental instability, absentmindedness, insomnia and deficient dysphoria in TCM. It remains poorly understood whether it can be used for menopause-associated mood disturbance such as anxiety and depression and cognitive deficit. The present study investigated whether the aqueous extract of *Lilii bulbus* (LBE) alleviates the anxiety-like and depression-like behavior, and improves the memory impairment in ovariectomized mice. The animal model was established by bilateral ovariectomy (OVX) combined with two-week chronic unpredictable mild stress (CUMS). The ovariectomized C57BL/6N mice were given 1.8 g/kg/day of LBE by gastrogavage for 4 weeks. Estradiol (0.3 mg/kg/day) was served as positive control. The anxiety-like behavior was assessed by open field test and elevated plus maze test while the depression-like behavior was assessed by sucrose preference test, forced swimming test and tail suspension test. Morris water maze test was conducted for evaluating the spatial working memory. It is found that OVX increased anxiety-like and depression-like behavior and caused memory impairment as compared to sham group. LBE treatment as well as hormone replacement therapy with estradiol significantly attenuated the anxiety-like and depression-like behavior and ameliorated cognitive deficits based on the results of behavior tests, moreover, OVX down-regulated the expression of BDNF, NGF, GDNF and TrkB, which can be reversed by LBE and estradiol administration. In addition, western blot analysis revealed that LBE and estradiol administration modulated the protein expression of Bcl-2, Bax, CaMK II and p-CaMK II. The results indicated that LBE can alleviate the menopause-associated mood disturbance and cognitive deficit and its mechanism may partially be ascribed to up-regulating the expression of neurotrophic factor and anti-apoptosis.

Biography

Zhou Xidan has received her Bachelor's degree from Chengdu University of Traditional Chinese Medicine and Master's degree from Institute of Chinese Materia Medica, China Academy of Chinese Medical Sciences. She has been interested in Chinese herbs and she is pursuing her PhD degree in School of Chinese Medicine, the University of Hong Kong. Her current research project focuses on seeking novel and effective therapeutic strategies from traditional Chinese medicine formula against major psychiatric disorders, including anxiety, depression and cognitive deficit.

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