A Study on the Effect of Traditional Chinese medicine Chaihu-guizhi Decoction Reducing the Susceptibility and Severity of Influenza in Depressed Mice

Sun Qi Hui (✉ sunqihui1214@163.com)

Shandong University of Traditional Chinese Medicine <https://orcid.org/0000-0001-6506-7263>

Jingye Zhao

Shandong University of Traditional Chinese Medicine

Jinghua Yang

Shandong University of Traditional Chinese Medicine

Xiaochen Zhang

Shandong University of Traditional Chinese Medicine

Qingge Zheng

Shandong University of Traditional Chinese Medicine

Shaozhe Zhao

Shandong University of Traditional Chinese Medicine

Xiaoyun Liu

Shandong University of Traditional Chinese Medicine

Rong Rong

Shandong University of Traditional Chinese Medicine

Yong Yang

Shandong University of Traditional Chinese Medicine

Research

Keywords: Chaihu-guizhi decoction, influenza A virus, depressed mice model, anti-inflammation, Th1/Th2

Posted Date: June 22nd, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-632962/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

Background: Depression is one of the most common illnesses in the world. In the flu season, depressed patients are more prone to influenza infection. It causes serious health problem worldwide. Chaihu-guizhi decoction (CGD) is a classic prescription to treat depressed patients with fever in clinical practice in China. However, the pharmacological activity and mechanisms of CGD against this disease have never been reported before. We investigated the changes of depressed condition, antiviral effects, anti-inflammatory, genes and protein expressions of T-helper cell type 1/type 2 (Th1/Th2) cytokines with CGD in combined mice model. This work will provide reliable evidence of the experiments for its better clinical practice.

Methods: Depressed mice were dealt with by intraperitoneal injection of reserpine solution, then intranasal infection influenza A (H1N1) virus to create combined mice model. Oral administration of CGD was conducted in mice with 30.55-61.1 g/kg/d lasting up to 6 days. Physiological indicators, behavior changes, histopathological manifestations, digestive abilities, dopamine levels and virus expressions[^] of the mice were detected. Moreover, levels of Th1/Th2 cytokines, including IL-2, IL-6, IL-10, IFN- γ and TNF- α , were detected in the sera of mice. **Results:** The extraction of CGD at dosages of 30.55-61.1 g/kg could effectively relieve the state of depression, decrease influenza virus genes expression, reduce viscera index of the lung, ameliorate lung edema and inflammation. Administration of CGD significantly down-regulated the expression of IL-6, TNF- α and IFN- γ . CGD also manifested a decreasing trend in the ratio of IFN- γ /IL-10, compared with that of model treatment groups.

Conclusion: The results reveal that the CGD could treat depression syndrome in mice combined with influenza A (H1N1) virus infection by reducing inflammation and ameliorating depressive status.

Full Text

This preprint is available for [download as a PDF](#).