REFERENCES


REFERENCES


Disclosure of Interests: None declared

AB0121

THE MECHANISM OF TRADITIONAL CHINESE MEDICINE PRESCRIPTION ER-MIAO-SAN IN THE TREATMENT OF RHEUMATOID ARTHRITIS BASED ON CHOLINERGIC ANTI-INFLAMMATORY PATHWAY

Ze Wang, Huijing Hao, Li Zhen, Yuting Gao, Jianhong Guan. SHANXI UNIVERSITY OF CHINESE MEDICINE, Basic Laboratory of Integrated Traditional Chinese and Western Medicine, Shan Xi, China

Background: Rheumatoid arthritis (RA) is a chronic progressive autoimmune disease. The traditional Chinese herbal formula Er-miao-san (EMS) has been used to treat RA demonstrating significant clinical efficacy; however, the mechanism of action remains unclear. In view of the important role of α7 nicotinic acetylcholine receptor (α7nAChR) in the cholinergic anti-inflammatory pathway (CAP) for the regulation of inflammation and cytokines. Indeed, we previously found a correlation between CHRNA7 (encoding α7nAChR) expression and EMS; we hypothesized that it may play a role in the anti-inflammatory effects of EMS.

Objectives: The mechanism of EMS in the treatment of RA based on CHRNA7 involved in the regulation of CAP.

Methods: We established a CIA model with female Wistar, and the effects of intragastric administration of EMS on the expression of CHRNA7, arthritis score, inflammatory, and articular cartilage changes, was examined in the joints. The serum levels of TNF-α, IL-6, and IL-1β were determined using commercial ELISA kit.

Results: The CIA model was successfully established. Macroscopic changes of arthritis, such as redness and swelling, were clearly observed in the CIA rats, but were ameliorated by the treatment of EMS. The mean arthritis score was markedly lower in the EMS-treated group (EG, P < 0.05). The serum levels of TNF-α was significantly lower in EG compared with CIA group (P < 0.05). The same results were found in the serum levels of IL-6 and IL-1β. Synovial edema and extensive infiltration of inflammatory cells occurred in the CIA rats, but were repaired by the treatment of EMS. Cartilage tissue was thinner, dissolution and disappearance, as well as extensive inflammatory cell infiltration with plasma cells and lymphocytes, was observed in the articular cartilage of the ankles in CIA group. In contrast, EMS treatment prevented cartilage degeneration and markedly reduced inflammation. Immunohistochemistry (IHC) analysis showed positive signals of CHRNA7 was expressed on fibroblast-like synoviocytes, macrophages, and endothelial cells in the joints. Effect of EMS on the expression of CHRNA7 protein in the joint by Western blot (WB) analysis. IHC and WB relative optical density values of CHRNA7 was significantly higher in EG compared with CIA group (P < 0.05).

Conclusion: EMS can significantly alleviate the symptoms of arthritis in CIA rats by regulating the expression of CHRNA7 in CAP. It provides a scientific research foundation for the further development of EMS and explores more ways to treat RA.

Disclosure of Interests: None declared
there is a lack of relevant reports on their function in chronic, multiscyst autoimmune diseases.

**Objectives:** Here, using molecular biology techniques were performed to evaluate the expression of 7 chemokines/chemokine receptors in different tissues and their localization in the joints.

**Methods:** We established a collagen-induced arthritis (CIA) model in female Wistar rats and evaluated the expression patterns of 7 chemokines/chemokine receptors (CCR3, CCR5, CCR7, CCL5, CXCR3, CXCR4, and CXCL10) in different tissues using qRT-PCR and western blotting and their localization in the joints using immunohistochemistry.

**Results:** The mRNA expression of CCR3, CCR7, CXCR4, and CXCL10 was significantly higher in the spleen and joints, while that of CCR5 and CCL5 was significantly higher in the liver and that of CXCR3 was significantly higher in the lung, spleen, and joints (Fig. 1). Protein expression patterns largely corresponded to mRNA expression patterns. In the joints, CCR3, CCR5, and CCR7 were expressed in fibroblast-like synoviocytes (FLS), macrophages, stromal cells, and endothelial cells. CCL5, CXCR3, and CXCR4 were expressed in FLS, endothelial cells, and stromal cells. CXCL10 was expressed throughout the synovium, stromal cells, and endothelial cells (Fig. 2).

**Conclusion:** Seven chemokines/chemokine receptors are widely expressed in different tissues in the CIA rat model, and all are involved in the inflammatory response. Our results provide a basis for investigations into the mechanism of chemokine and chemokine receptor expression patterns in different tissues in the CIA rat model, and all are involved in the inflammatory response.

**References**


**Acknowledgement:** The authors are grateful to everyone who helped in this work. This work was supported by Applied Basic Research Project of Shanxi Province (201803D31228), Key Research and Development (R&D) Projects of Shanxi Province (201803D31084), Scientific and Technological Innovation Programs of Higher Education Institutions in Shanxi (201804001), and Research Project of Health Commission of Shanxi Province (2018001).

**Disclosure of Interests:** None declared.