

Anti-inflammatory effect of Traditional Chinese Medicine in Depression—a systemic review and meta-analysis

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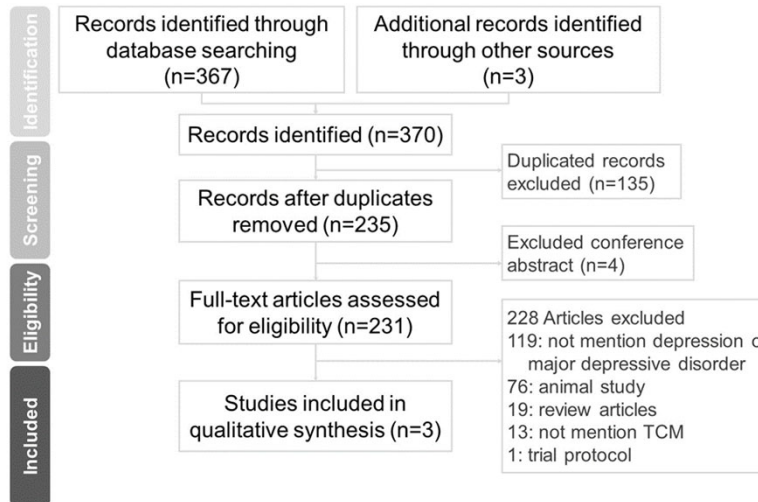
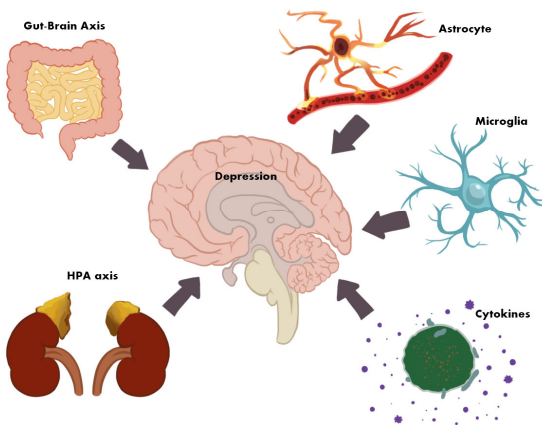
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Background:

Neuroinflammation has an important role in depression. And Traditional Chinese Medicine (TCM) is an essential alternative therapy (developed 3000 years ago) and is widely used around the world, especially in East Asia.

Method:

We conducted a systemic literature review for the anti-inflammatory effects of Traditional Chinese Medicine (TCM) applying molecular mechanisms focusing on the neuroinflammation in depression. We demonstrated the anti-inflammation or immunomodulation effects of TCM, including acupuncture, from basic and clinical research, including cellular and molecular approaches. Then we focused on the clinical studies, we used Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines for searching and listed our flowchart.



Result:

A total of 235 records were identified. We summarized the mechanism from animal studies into a figure (in the left lower corner). And we made a table of three clinical studies containing inflammatory markers in patients with depression who received TCM intervention. TCM could inhibit oxidative stress in the central nervous system, regulate mitochondrial dysfunction, inhibit neuronal apoptosis, inhibit abnormal protein aggregation, inhibit neuroinflammation, etc. Acupuncture had shown the effect of neuroprotection, anti-inflammation, and anti-apoptosis in mice models of depression. Although many animal studies demonstrated the anti-inflammatory effect of TCM in depression. But there were only three human clinical research investigated the anti-inflammatory effect in patients with depression during January 1, 1980, till June 20, 2021.

Conclusion:

In conclusion, inflammation plays a critical role in the neuropsychopathological process. At the same time, anti-inflammation seems to be the common biological pathway for the effects of TCM and acupuncture in patients with depression.

Table 1. Anti-inflammatory effects of TCM in depressive patients

First author	Year	Study design	N	Intervention group	Treatment duration	Control group	Clinical markers	Inflammatory markers
Song Cai	2009	RCT	95	1. EA+Placebo 2. Sham EA+Fluoxetine	6 weeks	Sham EA+Placebo	similar HDRS, CGI	Both EA and Fluoxetine reduced the serum IL-1 β levels
Roxana D. Vázquez	2011	RCT	42	Real acupuncture	6 weeks	Sham acupuncture	lower Carroll rating scale, SCL-90	Reduced salivary cortisol level
Liu Yi	2015	RCT	126	Acupuncture+SSRI	6 weeks	SSRI only	lower MADRS, SERS scores	Lower IL-6, higher IL-4 and IL-10

Abbreviations: RCT= randomized controlled trial; EA= electroacupuncture; SSRI= selective serotonin reuptake inhibitors; HDRS= Hamilton Depression Rating Scale; CGI= Clinical Global Impression; SCL-90 = Symptom Checklist-90; MADRS= Montgomery-Asberg Depression Rating Scale; SERS= Side Effect Rating Scale; IL= interleukin.