

Screening of the antidepressant-like effect of the traditional Chinese medicinal formula Si-Ni-San and their possible mechanism of action in mice

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ABSTRACT

Background The traditional Chinese medicine formula Si-Ni-San has well therapeutic applications in improvement of mental diseases including depression. However, the neuropharmacological and neuroendocrine mechanisms of the formula on antidepressant-like action have not been reported. **Objective** Herein, we explored the antidepressant-like effect and its mechanism of Si-Ni-San. **Materials and Methods** Acute effect of Si-Ni-San on the immobility time was assessed in the mouse forced swim test (FST) and tail suspension test (TST). Moreover, we investigated the neurochemical, neuroendocrine, and neurotrophin systems involved in the antidepressant-like effect of this formula. **Results** Si-Ni-San significantly decreased the immobility time after acute treatment in the mouse TST (1300 mg/kg) but not in the FST compared with the control group. In addition, pretreatment of mice with PCPA or AMPT prevented the anti-immobility effect of Si-Ni-San (1300 mg/kg) in the TST. Moreover, acute Si-Ni-San (1300 mg/kg) decreased serum corticosterone levels, elevated serotonin (5-HT), norepinephrine (NE), and dopamine (DA) levels without affecting brain-derived neurotrophic factor (BDNF) levels in the whole brain exposed to TST. **Conclusion** The acute antidepressant-like action of Si-Ni-San is mediated by the monoaminergic and neuroendocrine systems although underlying mechanism still remains to be further elucidated, and this formula should be further investigated as an alternative therapeutic approach for the treatment of depression.

KEYWORDS

BDNF . corticosterone . depression . monoamine neurotransmitter . Si-Ni-San

REFERENCES