

## Clinical study of 435 children with Tourette syndrome

### **Abstract**

**Object:**To observe the clinical efficacy of traditional Chinese medicine paste in the treatment of children with tourette syndrome.

**Method:**A retrospective study was conducted on 435 patients diagnosed with TIC disorder in our hospital from February 2021 to February 2023, and the children who used traditional Chinese medicine paste and those who did not used traditional Chinese medicine paste were divided into two groups to observe the clinical efficacy of the two groups.

**Results:** In the TCM patch group, 167 cases were significantly effective, 178 cases were effective, and the clinical efficacy was 89.6%, which was significantly higher than that in the non-patch group.

**Conclusion:** Traditional Chinese medicine plaster treatment of tourette syndrome can significantly relieve the condition of children, improve clinical symptoms, improve the effectiveness of clinical treatment, and has high clinical application value.

**Keywords:**Chinese population; Traditional Chinese medicine paste;Tourette syndrome.

### **Introduction**

Tourette syndrome(TS) is a neuropsychiatric disorder originating in

childhood and adolescence, which is characterized by simple or complex tics, that is, sudden, rapid, repeated, and rhythmic stereotyping of movements or vocalization. It is prominent in early childhood and progressively deteriorates, with a peak in severity at the age of 10<sup>[1]</sup>. The clinical features of TS are related to age. Tourette syndrome can be transmitted at any age during childhood, but is usually transmitted from around 2 to 18 years of age, with a peak at around 6 years of age. Tourette syndrome is more common in men, and often co-occurs with other mental and behavioral disorders, including compulsive behavior or obsessive-compulsive disorder, ADHD, autism spectrum disorder, anxiety disorder, depression, sleep disorders, and self-harm behavior. A cross-sectional study of 1374 people shows that isolation TS is the exception rather than the rule: as much as 88% of patients with tourette syndrome was diagnosed in their life at least one other mental illness, 58% of patients diagnosed with two or more complications<sup>[2]</sup>.

In recent years, with the increase of children's mental stress, the incidence of Tourette syndrome continues to increase. If the condition is not controlled in time, it will not only affect the quality of their daily life, but also can induce mental illness. Therefore, it is necessary to take a reasonable plan to treat it in time after clinical diagnosis.

In China, several antipsychotic drugs, including traditional Chinese medicine, are used to treat Tourette syndrome. In Western medicine,

tiapride, aripiprazole and other drugs are used to treat the children, although they can quickly relieve the clinical symptoms, but there are adverse reactions such as appetite loss and sweating disorders. Under the guidance of traditional Chinese medicine and acupuncture theory system, acupoint sticking therapy is an external treatment that applies granular drugs to an ear point to achieve therapeutic effects through stimulation. In order to further assess the value of the treatment, we selected 435 cases of patients diagnosed with Tourette syndrome were studied.

## **Research Methods**

### **Characteristics of the Patients**

A retrospective study was conducted on 435 patients diagnosed with Tourette syndrome in our hospital from February, 2021 to February, 2023. Children with and without tic strips were divided into two groups. 385 children with tic strips and 50 children without tic strips were treated.

There were 274 males (71.2%) and 111 females (28.8%) in the Traditional Chinese Medicine(TCM) patch group, and 31 males (62%) and 19 females (38%) in the non-patch group. There were 229 patients aged from 3 to 7 years, including 205 patients (53.2%) in the patch group and 24 patients (48%) in the non-patch group. There were 206 patients aged from 8 to 14 years, including 180 patients (46.8%) in the patch group and 26 patients (52%) in the non-patch group.

**Table 1. Demographic Characteristics of the Patients**

		TCM patch group (%)	non-patch group (%)
Age	3~7	205 (53.2%)	24 (48%)
	8~14	180 (46.8%)	26 (52%)
Gender	Male	274 (71.2%)	274 (71.2%)
	Female	111 (28.8%)	111 (28.8%)

## Methods

Excel was used for data statistics and analysis.

## Research result

### clinical symptoms

Among the 385 patients in the TCM patch group, blink was seen in 263 patients, and grin and shrug were seen in 21 patients respectively. In the non-patch group, blink was seen in 28 patients, throat clearing was seen in 15 patients and other clinical manifestations were seen in 15 patients respectively.

Table 2. Clinical symptoms of the Patients

symptoms	Grin	shrug	Kick	Blink	throat clearing	Others
TCM patch group	21	21	2	263		
non-patch group				28	15	15

## Treatment effect

In the TCM patch group, 167 cases were significantly effective, 178 cases were effective, and the clinical efficacy was 89.6%, which was significantly higher than that in the non-patch group.

**Table 3. Treatment Effects in the Patients**

Group	n	excellent	effective	ineffective	clinical effects
patch group	385	167(43.4%)	178(46.2%)	40 (10.4%)	345(89.6%)
non-patch group	50	14 (28%)	17 (34%)	19 (38%)	45 (62%)

### Discussion

There is no corresponding disease name and systematic description of Tourette syndrome in ancient Chinese medical books. However, the symptoms of recurrent involuntary convulsions in children associated with TS, such as nodding, blinking, opening the mouth, raising the shoulders, raising the legs, and bulging the abdomen, are similarly described in several ancient texts. At present, there is no unified understanding of the etiology and pathogenesis of TS in the field of traditional Chinese medicine, and there is no consensus on the diagnosis and treatment. According to the current clinical knowledge, the etiology and pathogenesis of TS are summarized as follows: the location of Tourette syndrome is mainly in the liver, and the liver is closely related to the heart, spleen and kidney. The causes of tourette syndrome are various and are related to congenital defects, birth trauma, asphyxia, sensory exogenous pathogens, and emotional disorders. Most are caused by the five gods excessive and wind phlegm internal disturbance<sup>[3-4]</sup>.

The guidelines emphasize that it is difficult to completely cure Tourette syndrome by using western medicine alone, and it is often accompanied by various adverse reactions. Therefore, complementary and alternative therapies are urgently needed for the treatment of Tourette syndrome. In long-term medical practice, TCM physicians have gradually found that although both TCM prescription and acupuncture can produce therapeutic effects on touts, the effect of TCM combined with acupuncture on TS is more significant and has fewer adverse reactions<sup>[6]</sup>.

Auricular point sticking is a characteristic therapy of traditional Chinese medicine commonly used in clinical practice. Auricular point sticking can stimulate and enhance the afferent impulses of the vagus nerve, reduce the level of excitatory neurotransmitters such as norepinephrine, and regulate the content of central neurotransmitters such as dopamine, serotonin and  $\gamma$ -aminobutyric acid, thereby relieving anxiety and other effects<sup>[7]</sup>.

In recent years, auricular point sticking is often used as an adjuvant treatment for children with tourette syndrome due to its advantages of simple, easy to learn, safety and low price. The results show that it has a excellent effect.

The results of this study found that the total effective rate after treatment was significantly higher in the TCM patch group than in the non-patch group. The results showed that Chinese medicine plaster in the

treatment of children with Tourette syndrome can significantly alleviate the condition of children, improve the clinical symptoms, improve the effectiveness of clinical treatment, has ideal clinical effect, and is suitable for popularization and application.

In previously published studies, no obvious adverse reactions were observed in the treatment of touresis with TCM preparations and acupuncture. However, clinicians should pay close attention to the patient's medication safety and fully understand the patient's medication history and allergy history. The pathogenesis of Tourette syndrome is still unclear in modern medicine, and the treatment is relatively limited, and the curative effect is not satisfactory. As a part of complementary medicine and alternative medicine, TCM can effectively supplement the shortcomings of modern medical treatment methods. TCM syndrome differentiation and treatment of tourette syndrome has the characteristics of accurate curative effect and high safety, which is worthy of clinical promotion. However, at present, there is a lack of high-quality and high-level randomized controlled trials in the field of Tourette syndrome treatment with TCM in China and even in the world. We sincerely hope that more scholars will participate in this study in the future to provide higher level and higher quality research data for clinical practice. In addition, after the elimination of tic symptoms, the patient's diet and life should be arranged scientifically and reasonably to avoid excessive

excitement, tension and fatigue, and pay attention to the patient's prognosis to prevent the recurrence of the disease.

### References

[1]Leckman JF, Zhang H, Vitale A, Lahnin F, Lynch K, Bondi C, Kim YS, Peterson BS. Course of tic severity in Tourette syndrome: the first two decades. *Pediatrics*. 1998;102(1 Pt 1):14–9.

10.1542/peds.102.1.14

[2]Hirschtritt M, Lee P, Pauls D, et al.. Lifetime prevalence, age of risk, and genetic relationships of comorbid psychiatric disorders in Tourette syndrome. *JAMA Psychiatry*. 2015;72:325–33.

[3]Liu Y, An J, Liu Y. Professor Huang Linna's experience in treating Tourette's syndrome with Fang's scalp acupuncture. *Chin AcupunctMoxibust*. 2019;39:765–70.

[4]Wang S. *Pediatrics of Chinese Medicine* [M]. Beijing: China Traditional Chinese Medicine Press, 2002.

[5]Zhu P, Zuo X, Jiang B, et al.. Sun Shentian's clinical experience in acupuncture treatment of Tourette's syndrome. *Chin AcupunctMoxibust*. 2023;43:261–4.

[6]LIU C H, YANG M H, ZHANG G Z, et al. Neural networks and the anti- inflammatory effect of transcutaneous auricular vagus nerve stimulation in depression [J] . *J Neuroinflamm*, 2020, 17 (1) : 54. DOI: 10.1186/s12974-020-01732-5.

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