

## CLINICAL STUDY

**Effect of a Traditional Chinese Medicine combined therapy on adolescent idiopathic scoliosis: a randomized controlled trial**

Wei Hui, Xu Jinyuan, Jiang Zhong, Ye Shuliang, Song Hongquan, Ning Xitao, Huang Huanmin, Chen Wei, Pei Jianwei, Jiang Nengyi, Chen Shao, Du Honggen

**Wei Hui, Xu Jinyuan, Jiang Zhong, Ye Shuliang, Song Hongquan, Ning Xitao, Huang Huanmin, Chen Wei, Pei Jianwei, Jiang Nengyi, Chen Shao, Du Honggen**, Department of Tuina, Zhejiang Provincial Hospital of Traditional Chinese Medicine, The First Clinical Medicine College of Zhejiang University of Traditional Chinese Medicine, Hangzhou 310006, China

**Supported by** Outstanding Youth Fund of the Administration of Traditional Chinese Medicine of Zhejiang Province, China (No. 2012ZQ011)

**Correspondence to: Prof. Du Honggen**, Department of Tuina, Zhejiang Provincial Hospital of Traditional Chinese Medicine, Hangzhou 310006, China. duhonggen1212@163.com

**Telephone:** +86-13958088996

**Accepted:** October 10, 2014

**Abstract**

**OBJECTIVE:** To evaluate the effectiveness of a combined Traditional Chinese Medicine (TCM) therapy versus conventional treatment on adolescent idiopathic scoliosis.

**METHODS:** One hundred twenty outpatients with mild and moderate adolescent idiopathic scoliosis were randomly divided into a TCM group (TCMG) and a brace group (CG). TCMG patients underwent Daoyin, Tuina, and acupotomy therapies. CG patients were treated with a Milwaukee brace. Each patient's Cobb angle was measured after 12 and 24 months of treatment, and pulmonary function was determined after 12 months of treatment. Average electromyogram (AEMG) ratio of the surface electromyogram was measured after 6 and 12 months of treatment and followed-up after 18 and 24 months.

**RESULTS:** The Cobb angle significantly decreased in both groups after 12 months of treatment compared with before treatment ( $P < 0.05$ ). The percentages of original Cobb angle in TCMG and CG were 51.4% and 47.8% ( $P > 0.05$ ) after 12 months and 62.5% and 34.7% ( $P < 0.05$ ) after 24 months, respectively. Pulmonary function significantly improved after 12 months in TCMG ( $P < 0.05$ ) but significantly decreased in CG ( $P < 0.05$ ). The AEMG ratio was significantly lower ( $P < 0.01$ ) and tended to remain at 1 after stopping treatment in TCMG, but increased in CG ( $P < 0.05$ ).

**CONCLUSION:** TCM combined therapy can prevent the progression of scoliosis. The AEMG ratio is a promising index that could replace radiography in the evaluation of treatment effect and progression in scoliosis.

© 2015 JTCM. All rights reserved.

**Key words:** Medicine, Chinese traditional; Scoliosis; Adolescent; Electromyography; Treatment outcome; Respiratory function tests; Randomized controlled trial

**INTRODUCTION**

Adolescent idiopathic scoliosis (AIS) is the fifth most common developmental disease in adolescents after myopia, mental health, obesity, and phimosis, and AIS is one of the most common spinal deformities.<sup>1</sup> Early assessment and treatment is important to avoid rapid aggravation in adolescence with resultant heart and lung dysfunction, or weakness and paralysis of the lower limbs. AIS has a serious impact on patient physiolo-

gy and psychology, and early alleviation or prevention is essential to reduce the need for orthopedic interventions.<sup>2,3</sup> At present, the use of a brace in patients with mild or moderate AIS is generally considered an acceptable and effective intervention in Europe and America.<sup>4,5</sup> However, poor compliance is a factor for its poor outcomes. Furthermore, the long-term effects and surgical rate reduction of the brace are controversial. During evaluation of the scoliosis progression with the brace, repeated radiography is required and may be harmful to the patients.<sup>6,7</sup> In addition, studies have indicated adverse effects of long-term brace use, including diminished quality of life, development problems, and physiological and pulmonary effects.<sup>8,9</sup> Based on the Traditional Chinese Medicine (TCM) theories of "association of activity and inertia" and "balance of *Yin* and *Yang*,"<sup>10</sup> and previous findings that the convex/concave average electromyogram (AEMG) ratio in AIS is positively correlated with the Cobb angle,<sup>11,12</sup> we proposed a combined therapy including Daoyin, Tuina, and acupotomology. This treatment aimed to address the muscular imbalance between scoliosis sides and spinal disorder.<sup>13-15</sup> Compared with the brace method, this therapy emphasizes patient activeness, neither affecting daily life nor having adverse effects on physical and psychological development.<sup>16</sup> Furthermore, this treatment was more available and patients were more willing to accept it.

## MATERIALS AND METHODS

### *Setting and design*

Patients were diagnosed with AIS at the Tuina Department of Zhejiang provincial hospital of TCM from January 2008 through May 2011. One hundred twenty outpatients were recruited in this 24-month study. Patients were randomly divided into the TCM combined therapy group (Daoyin, Tuina, and acupotomology) (TCMG;  $n = 60$ ) or into the brace group (CG;  $n = 60$ ) using the SAS 6.0 program (SAS, Inc., Cary, NC, USA). The study was approved by the Ethics Committee of the First Clinical Medicine College of Zhejiang University of TCM. Each patient and guardian signed an informed consent form. The general characteristics of the two groups are shown in Table 1.

### *Inclusion criteria*

Patients were included according to the following Scoliosis Research Society (SRS) criteria:<sup>17</sup> (a) age,  $\geq 10$  years; (b) Risser sign, 0-2; (c) Cobb angle, 20-40°; (d) initial diagnosis with no previous treatment; and (e) premenarche or within 1 year of menarche onset in female patients selected for treatment with a brace.

### *Exclusion criteria*

Patients were excluded according to the following criteria: (a) scoliosis with a definite pathology; (b) concur-

rent serious diseases such as: cardiovascular disease, liver, or kidney diseases; hematopoietic disorders; and mental illness; (c) thrombocytopenia, coagulopathy, or bleeding tendency; or (d) concern or doubt about treatment.

### *Interventions*

The TCMG received Daoyin, Tuina, and acupotomology. Daoyin spinal balance exercises are selected from ancient Chinese traditional health preserving methods, the purpose is to make soft tissue (*jin*) stronger and retain body's balance, moves include Anmoyaoyan, Fengbaiheye, Zhuanshentuibe, Zhangchahuashan, Zaixinghuandou, Baimafengzong, and Fenghuangshunci from "YiJin Jing."<sup>18</sup> Doctors taught the patients the exercises, which were carried out for 40 min twice a day by each patient until skeletal maturity. Tuina spinal balance was completed by a specialist. First, rolling, kneading, and digital-pressing manipulations were carried out on the Du channel (GV) and both sides of the Bladder channels (BL). Second, pushing and pulling of successive muscle and spinous processes were applied from the convex side toward the concave side for 5 min. Third, with the patient in the prone position, pressure was applied with one palm on Mingmen (GV 4) while the other hand pulled the patient's shoulder to bring the hands together for about 1 min, thereby extending the spine as far as possible. This was repeated 3-5 times. The whole procedure took 20-25 min and was repeated twice a week for 12 months. For acupotomology, Zhu Hanzhang's type II knife was used to release and dredge the soft tissues of the concave side and the convex side and cross the contracture band in compensatory scoliosis to remove the scoliosis pathological structures. Successive sites included the lumbodorsal fascia ligament, thoracolumbar junction ligament, and soft tissue around the neck, thoracic facet, and adhesions due to scarring. This was performed once a week, with release at 5 to 7 points, for ten treatments. Daoyin and Tuina were suspended for 3 days after each acupotomology treatment.

Patients in CG wore a Milwaukee brace for at least 22 h every day, allowing for 2 h for skin care and breathing exercises to maintain the body's flexibility. A course of treatment was 12 months. Spine radiographs were taken with and without the brace in the standing position every 3 months, and the Cobb angle was recorded. According to the progression of scoliosis, the ring and cushion positions of the brace were adjusted at the appropriate time. Furthermore, the doctor counseled patients to give confidence to overcome the disease and stress the importance of standard wear to help ensure completion of the entire treatment course.

### *Main outcome measurements*

A Nicolet evoked-potential instrument (produced by Nicolet Corporation, 525 West Monroe Street, Suite 1900, Chicago in USA) was used to detect changes in

Download English Version:

<https://daneshyari.com/en/article/4201097>

Download Persian Version:

<https://daneshyari.com/article/4201097>

[Daneshyari.com](https://daneshyari.com)