Special Topic Study

Observation on clinical effects of tuina plus montelukast sodium tablets for children with cough variant asthma

推拿结合孟鲁司特钠治疗小儿咳嗽变异性哮喘疗效观察

Ye Kang (叶康)

Nanjing Integrated Traditional Chinese and Western Medicine Hospital Affiliated to Nanjing University of Chinese Medicine, Jiangsu 210014, China

Abstract

Objective: To observe the clinical effects of tuina plus oral administration of montelukast sodium tablets for children with cough variant asthma (CVA).

Methods: A hundred and six children with CVA were randomly divided into a treatment group and a control group, 53 cases in each group. The treatment group was treated with Tuina therapy plus oral administration of montelukast sodium tablets, and the control group was treated only by oral administration of montelukast sodium tablets. Tuina treatment was given three times per week. 5 mg of montelukast sodium tablets was given orally before bedtime every night. The therapeutic effects were assessed after the treatment of four weeks in both groups.

Results: The total effective rates were 92.5% in the treatment group and 77.4% in the control group. The difference in the total effective rate between the two groups was statistically significant (*P*<0.05).

Conclusion: The therapeutic effect of tuina plus montelukast sodium tablets for children with CVA is better than that of oral administration of montelukast sodium tablets alone.

Keywords: Tuina; Massage; Cough; Asthma; Montelukast; Child, Preschool

【摘要】目的:观察推拿结合口服孟鲁司特钠治疗小儿咳嗽变异性哮喘(CVA)的临床疗效。方法:将106例CVA患儿简单随机法分为治疗组和对照组,每组53例。治疗组接受推拿配合口服孟鲁司特钠治疗,对照组单独口服孟鲁司特钠。推拿每星期治疗3次,孟鲁司特钠每晚睡前口服5 mg。两组均治疗4星期后进行疗效评价。结果:治疗组总有效率为92.5%,对照组总有效率为77.4%,两组总有效率差异有统计学意义(P<0.05)。结论:推拿结合口服孟鲁司特钠治疗CVA患儿的疗效优于单独口服孟鲁司特钠。

【关键词】推拿;按摩;咳嗽;哮喘;孟鲁司特钠;儿童,学龄前

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Cough variant asthma (CVA), also termed concealed asthma, or allergic asthma, is a special type of asthma in children and mainly characterized by intractable cough, but not accompanied by obvious asthmatic diseases, and is extremely easy to occur repeatedly. It is mainly treated by antibiotics, anti-asthmatic, cough- relieving and expectorant medications. Because of adverse reactions of medications and poor compliance in children, the effective rate was not high and the recurrence rate was comparatively high. Due to better therapeutic effect, free of side and toxic effects and high compliance, infantile tuina therapy is accepted by the sick children and their parents. I treated CVA children

Author: Ye Kang, M.M., attending physician of traditional Chinese medicine. E-mail: yk05803112@126.com with tuina plus oral administration of montelukast sodium tablets. Now, the report is given as follows.

1 Clinical Materials

1.1 Diagnostic criteria

In reference to the diagnostic basis of CVA in *Pediatrics of Integrated Chinese Medicine and Western Medicine*^[1], the symptoms: persistent cough lasting over four weeks, attack or aggravated frequently at night and (or) in the early morning, mainly dry cough, no clinical infection, or failure in the long-term treatment by antibiotics, effect by the diagnostic treatment with anti-asthmatic medications, exclusion of chronic cough induced by other reasons, positive in bronchial provocation test and (or) daily variation rate of peak expiratory flow (monitored continuously for 1-2 weeks) \geq 20%, medical history of specific disease in the

individual or in the first-grade or second-grade relatives, or negative in allergen test. The previous four items were the basic conditions for diagnosis, and the following two items could be used for auxiliary diagnosis.

1.2 Inclusion criteria

In conformity with the above-mentioned diagnostic criteria; the age ranged from 2 to 6 years old; the parents of the sick children were informed and agreed to accept tuina treatment; and no skin lesion existed in the treating area.

1.3 Exclusion criteria

Those with cough but coincided with other diseases (such as serious infection in the upper respiratory tract, pneumonia, pulmonary tuberculosis, asthma, and foreign body in the trachea); those with serious malnutrition, or accompanied by other serious general diseases in the cardiovascular, hepatic, renal or hematopoietic system; those allergic to montelukast sodium tablets; and those under the administration of other anti-asthmatic medications during the treatment.

1.4 Statistical methods

The SPSS 13.0 statistical software was used for analysis. The measurement data were expressed by mean ± standard deviation ($\bar{x} \pm s$) and processed by *t*-test. The counting data was processed by Chi-square test. *P*<0.05 indicated a statistical significance in the difference.

1.5 General data

Totally, 106 sick children were recruited from Pediatric Clinic and Tuina Clinic of our hospital and were all in conformity with the diagnostic criteria of CVA. They were divided into a treatment group and a control group by simple random method, 53 cases in each group. The age ranged from 2 to 6 years old in the treatment group and from 2 to 6 years old in the control group. By statistical management of the gender, age and duration, the differences were not statistically significant (all P > 0.05), indicating that the two groups were comparable (Table 1).

Table	1.	Comparison	of general	data	between	the two	groups
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C		Gender (case)		Average age	Average duration	
Group	п	Male	Female	$(\overline{X}\pm s, year)$	$(\overline{x}\pm s, \text{month})$	
Treatment	53	25	28	3.4±0.7	1.1±0.2	
Control	53	27	26	3.5±0.6	1.1±0.3	

2 Treatment Methods

2.1 Treatment group

2.1.1 Tuina treatment

To reinforce Pijing for 300 times: The therapist held the infant's hand with the left hand, and pushed spirally the pulp of the infant's right thumb clockwise (Figure 1). To reinforce Shenjing for 300 times: The therapist held the child's palm with the left hand, and pushed the child's small finger from the finger tip to the finger root with the thumb of the right hand (Figure 2).



Figure 1. Reinforcing Pijing



Figure 2. Reinforcing Shenjing

To Yun-circularly push Neibagua clockwise and counterclockwise for 50 times respectively: The therapist held the child's four fingers by the left hand, with the palm upward, pushed and moved the acupoint with the lateral side of the thumb of the right hand. To push and move clockwise means to push and move Neibagua forward. To push and move Neibagua backward (Figure 3).



Figure 3. Yun-circularly pushing Neibagua

To Rou-knead Danzhong (CV 17): Danzhong (CV 17) is situated in the chest, on the front midline, at the level of the fourth intercostal space, and at the midpoint between the two nipples. After the sick child took a supine position, the therapist kneaded Danzhong (CV 17) lightly and gently by the force of pulp of the thumb or middle finger (Figure 4).



Figure 4. Rou-kneading Danzhong (CV 17)

To Rou-knead Rupang for 100 times: Rupang is situated in the chest, 0.2 cun lateral to the nipple. After the sick child took a supine position, the therapies held the rib sides of the sick child and kneaded it lightly with the thumbs respectively (Figure 5).



Figure 5. Rou-kneading Rupang

To Rou-knead Rugen (ST 18) for 100 times: Rugen (ST 18) is situated in the chest, directly below the nipple, at the bottom of the breast, in the fifth intercostals space, and 4 cun lateral to the anterior midline. After the sick child took a supine position, the therapist held the rib sides of the sick child, and lightly kneaded it with the thumbs respectively (Figure 6).

To Rou-knead Feishu (BL 13) for 300 times: Feishu (BL 13) is situated on the back, below the spinous process of the third thoracic vertebra, and 1.5 cun lateral to the midline. After the sick child took a supine position, the therapist lightly and gently kneaded Feishu (BL 13) by the force from the pulps of the two thumbs or middle fingers (Figure 7).

To Tui-push the scapula divergently for 100 times:

The therapist pushed the scapula with the two thumbs from Dazhui (CV 14) quickly downward, all the way to the end of the scapula, basically in two curves (Figure 8).



Figure 6. Rou-kneading Rugen (ST 18)



Figure 7. Rou-kneading Feishu (BL 13)



Figure 8. Tui-pushing the scapula divergently

To Nie-pinch the spine for 9 times: After the sick child took a prone position, with the back maintained flat and relaxed, the therapist clenched a half fist with the middle fingers, ring fingers and small fingers of the two hands, with the thumbs half flexed, and held the coccyx of the child with the radial sides of the middle sections of the indexes of the two hands, by the thumb opposite to the index finger, and pinched up the skin, and at the same time rolled the skin upward, along the two sides of the spine from Changqiang (GV 1), while pushing, pinching up and releasing, all the way to Dazhui (GV 14), as one process (Figure 9).



Figure 9. Nie-pinching the spine

The treatment was given three sessions per week, for about 30 min each session.

2.1.2 Oral administration of montelukast sodium tablets

Montelukast sodium tablets 5 mg was given orally before bedtime.

2.2 Control group

The sick children in the control group were only treated by oral administration of montelukast sodium tablets, with the dosage and usage as same as those in the treatment group. The therapeutic effects were assessed after the treatment of four weeks in both groups.

3 Observation of Therapeutic Effects

3.1 Criteria of therapeutic effects^[2]

Remarkable effect: Cough disappeared completely after the treatment and did not reoccur after the stop of the treatment in the sick children, without obvious limitations in their movements.

Effect: Cough was alleviated than before after the treatment and reoccurred occasionally, but relieved by itself, after the stop of the treatment in the sick children.

Failure: After the treatment, cough and other symptoms were not obviously alleviated or aggravated than before.

3.2 Therapeutic results

After the treatment of four weeks, the total effective rates were 92.5% in the treatment group and 77.4% in the control group. The difference in the total effective rate between the two groups was statistically significant (P < 0.05), indicating that the therapeutic effect of tuina plus montelukast sodium tablets was better than that of oral administration of montelukast sodium tablets alone (Table 2).

Tabl	le 2.	C	omparison	of cl	inical	effect	between	the	two	groups	(case))
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Group	п	Remarkable effect	Effect	Failure	Total effective rate (%)
Treatment	53	31	18	4	92.5 ¹⁾
Control	53	26	15	12	77.4

Note: Compared with the control group, P<0.05

4 Discussion

CVA is a special type of brachial asthma. Cough is its only or main clinical symptom, without obvious wheezing and shortness of breath, but bronchial hyperresponsiveness. In the treatment of children with CVA, the attention is mainly given to inhibit inflammation and reduce bronchial hyper-responsiveness^[3]. Clinically, β receptor agonist in combination of glucocorticoid is used to inhibit inflammatory reaction, alleviate airway spasm and relieve the symptoms of the sick children^[4] However, after the pathological situation is relieved in the sick children, because of contact with the allergen and infection of the respiratory tract, the problem could be induced again^[5]. Therefore, it is necessary to further optimize the therapeutic plan in accordance with its pathogenesis, in order to enhance the clinical effects and reduce the recurrence rate of the disease.

As a new-type, potent and selective leukotriene receptor antagonist, montelukast sodium tablets can

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selectively inhibit the activity of leukotriene peptides in the smooth muscle of the airway, and effectively prevent and inhibit the increased permeability of the blood vessels, infiltration of eosinophilic granulocyte and airway spasm due to leukotriene, and can reduce the cellular and non-cellular inflammatory substances due to allergic stimulation in the airway, and can inhibit the airway hyper-responsiveness excited by allergen^[6-7]. In the treatment of CVA, it is remarkable in the therapeutic effects and can obviously improve the pulmonary functions and can effectively control CVA^[8-9].

This disease belongs to the scope of cough in traditional Chinese medicine, as cough caused by internal injury. In traditional Chinese medicine, infantile tuina therapy is unique in the treatment of infantile chronic cough, and enable the sick children to realize the best status of yin and yang balance by adjusting the lung, spleen and kidney, so as to treat the problem and enhance the immunity, protect the vital energy to expel pathogens, and also promote the better growth and development of the children and finally realize the goals to prevent recurrence of the problem. The treatment is stressed in dealing with the causative reason, which is beyond oral medications^[10-14].

By observation of the clinical effects, the author believes that tuina therapy plus oral administration of montelukast sodium tablets is better than singular oral administration of montelukast sodium tablets in the therapeutic effects in the treatment of CVA, and is easily accepted by the sick children and their parents and needs to be clinically promoted.

Conflict of Interest

The author declared that there was no potential conflict of interest in this article.

Statement of Informed Consent

Informed consent was obtained from the guardians of the recruited children in this study.

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Translator: Huang Guo-qi (黄国琪)