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Clinical Study

Clinical observation of Liu's infantile tuina therapy for allergic rhinitis

刘氏小儿推拿治疗过敏性鼻炎的临床疗效观察

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Abstract
Objective: To discuss the clinical efficacy of Liu's infantile tuina therapy in treating kid's allergic rhinitis (AR).
Methods: Sixty eligible AR kids were randomized into a tuina group and a Western medication group by their visiting sequence, 30 cases in each group. The tuina group was intervened by Liu's infantile tuina therapy, once daily, 5 times as a treatment course, with a 2-day interval after a course; the control group was by orally taking Loratadine. The therapeutic efficacies were compared and analyzed after treatment for 4 successive weeks.
Results: After treatment, the symptoms such as itchy nose, sneezing, runny nose, and stuffy nose were significantly improved in both groups ($P<0.05$), and the improvements in the tuina group were more remarkable than those in the Western medication group ($P<0.05$). The total effective rate was 90.0% in the tuina group versus 73.3% in the Western medication group, and the difference was statistically significant ($P<0.05$).
Conclusion: Liu's infantile tuina therapy can produce a better therapeutic efficacy in treating AR kids compared to oral administration of Loratadine.
Keywords: Massage; Tuina; Pediatric Tuina; Rhinitis, Allergic; Loratadine
【摘要】目的：探讨刘氏小儿推拿疗法治疗儿童过敏性鼻炎(allergic rhinitis , AR)的临床疗效。**方法：**选取符合纳入标准的 AR 患儿 60 例，根据就诊顺序随机分为推拿组和西药组，每组 30 例。推拿组予以刘氏小儿推拿治疗，每日治疗 1 次，治疗 5 次为 1 个疗程，疗程后休息 2 d；对照组予以口服氯雷他定治疗。连续治疗 4 个星期后对比分析两组治疗效果。**结果：**治疗后两组患者鼻痒、喷嚏、流涕、鼻塞等症状均得到改善，与本组治疗前相比较，差异均有统计学意义($P<0.05$)，且推拿组患儿改善情况优于西药组($P<0.05$)。推拿组总有效率 90.0%，西药组总有效率 73.3%，两组总有效率差异有统计学意义($P<0.05$)。**结论：**刘氏小儿推拿治疗 AR 患儿的疗效优于口服氯雷他定。
【关键词】按摩；推拿；小儿推拿；鼻炎，变应性；氯雷他定
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Allergic rhinitis (AR) refers to a nasal mucosal inflammatory reaction mediated by immunoglobulin E (IgE) when a susceptible individual is exposed to allergens, causing a series of nasal symptoms such as stuffy or runny nose, sneezing, and itchy nose[1], equivalent to *Bi Nü* in traditional Chinese medicine (TCM). Triggered by the change of weather or stimulation of peculiar smells, AR will flare up[2-3]. AR is commonly encountered in pediatrics. Overtime, it may lead to sinusitis and allergic asthma.

To seek an effective treatment for AR in kids, we observed the clinical efficacy of Liu's infantile tuina manipulations in treating AR and compared it to oral administration of Loratadine. Now, the report is given as follows.

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1 Clinical Materials

1.1 Diagnostic criteria

The diagnostic criteria were based on the *Criteria of Diagnosis and Therapeutic Effects of Diseases and Syndromes in Traditional Chinese Medicine*[4], *Diagnostics of Traditional Chinese Medicine*[5], *Otorhinolaryngology* of *Traditional Chinese Medicine*[6], and *Pediatrics of Traditional Chinese Medicine*[7]: major symptoms include paroxysmal itchy nose, continuous sneezing, stuffy nose, large amount of clear nasal fluid, coupled with anosmia, itchy eyes, and itchy throat; the disease onsets quickly, and the symptoms usually last several minutes or even longer, but no sneezing or

stuffy nose in remission stage. Urticaria and asthma may be accompanied; it often flares up due to exposure to allergens such as pollen, smoke and dust, and chemical gas, and sometime, change of temperature in external environment can also be a trigger; pale and in some cases congested nasal mucosa, swollen nasal turbinates, and excessive clear secretion; Nasal secretion smear test, skin prick test for diagnosis of allergens, and test for IgE in serum or nasal secretion are helpful in confirming the diagnosis; should be differentiated from stuffy nose due to a common cold, chronic stuffy nose, and vasomotor rhinitis.

1.2 Criteria of syndrome differentiation TCM

Kids with AR due to deficient lung and spleen qi were recruited and the criteria for syndrome differentiation were: paroxysmal itchy nose, frequent sneezing, clear nasal fluid, baryodmia, severe stuffy nose, and pale nasal mucosa; there may also occur dizziness, fatigue and short of breath, lassitude, poor appetite, loose stool, swollen and pale tongue body covered with white coating, and slow and soft pulse.

1.3 Inclusion criteria

Those who met the above diagnostic criteria and TCM syndrome differentiation criteria; aged 3-5 years old, without gender predilection; those with good compliance, and the parents or guardians signed the informed consent form.

1.4 Exclusion criteria

Those against the inclusion criteria; with heart, lung diseases or diseases affecting other systems; with poor compliance and failed to finish the whole intervention, which would influence the data collection and evaluation of therapeutic efficacy; those with incomplete necessary medical materials.

1.5 Statistical method

The SPSS 19.0 statistical software was adopted for data processing. The numeration data were expressed as rate or constituent ratio and analyzed by using Chi-square test; the ranked data were by using *Ridit* test. The measurement data were expressed by ($\bar{x} \pm s$), and the intra-group comparisons were processed by using paired *t*-test, and the inter-group comparisons were by independent samples *t*-test. Two-tailed test was used, and $P<0.05$ indicated a statistical significance.

1.6 General data

The 60 AR subjects were all enrolled from the First Affiliated Hospital of Hunan University of Chinese Medicine, and randomized into a tuina group and a Western medication group, 30 cases in each group. The disease duration ranged from 3 months to a year in both groups. There were no significant differences in comparing the data of gender, age, and disease duration ($P>0.05$), indicating the two groups were comparable (Table 1).

Table 1. Comparison of general data

Group	*n*	Gender (case)		Average age ($\bar{x} \pm s$, year)	Average duration ($\bar{x} \pm s$, month)
		Male	Female		
Tuina	30	17	13	4.0±0.6	7.2±2.5
WM	30	12	18	4.1±0.6	7.3±2.4
Statistical value		0.00[1)]		−0.611[2)]	−0.277[2)]
P-value		0.196		0.547	0.833

Note: WM=Western medication group

2 Treatment Methods

The doctor's advices were same in the two groups: avoiding the exposure to allergens; keeping environment clean; determined in physical exercises, improving body resistance and preventing from catching a cold; plain diet, and food like fish, shrimp, seafood, dairy products, and eggs should be avoided.

2.1 Tuina group

Operation: Kai-open Tianmen for 30 times, Tui-push Kangong for 30 times, Rou-knead Zongjin 30 times, Fen-part yin-yang for 30 times, Rou-knead Yintang (GV 29) 200 times, Rou-knead Shangyingxiang (EX-HN 8) 200 times, Rou-knead Yingxiang (LI 20) 200 times, Rou-knead and Ca-rub Danzhong (CV 17) 200 times, supplement Feijing 300 times, tonify Shenjing 300 times, clear Ganjing 100 times, clear Xinjing 100 times, Rou-knead and Ca-rub Feishu (BL 13), Pishu (BL 20), and Shenshu (BL 23) respectively for 200 times, Ca-rub abdomen for 3 min, Na-grasp Fengchi (GB 20) for 1 min, Rou-knead Quchi (LI 11) for 1 min, Rou-knead Hegu (LI 4) for 1 min, Rou-knead Zusanli (ST 36) for 1 min, Tui-push Sanguan for 90 times, Nie-pinch spine for 4 times, and Na-grasp Jianjing (GB 21) for 3-5 times[8].

Treatment duration: Once a day, successive 5 treatment sessions as a course, with a 2-day interval between two courses, for 4 courses in total.

2.2 Western medication group

Kids in the Western medication group were prescribed with Loratadine for oral administration (10 mg/tablet, No: 06KRXFI039, Shanghai Schering-Plough Pharmaceuticals Co., Ltd., China)[9]. For kids of 2-12 years weighing over 30 kg, 1 tablet per dose, once a day; for the kids weighing ≤30 kg, half a tablet (5 mg) per dose, once a day.

Treatment duration: The treatment was given once a day, successive 5 treatment sessions as a course, with a 2-day interval between two courses, for 4 courses in total.

3 Therapeutic Observation

3.1 Observation items

The nasal symptoms and signs were observed, and the symptoms including itchy nose, sneezing, runny

nose, and stuffy nose were recorded. The symptoms and signs were scored by 4 levels, and the scoring criteria are shown in Table 2[10-11].

3.2 Criteria of therapeutic efficacy

The clinical efficacy was evaluated based on the improvement rate of the total score of symptoms and signs. Improvement rate of total score = (Pre-treatment total score − Post-treatment total score) ÷ Pre-treatment total score × 100%.

Markedly effective: The improvement rate of total score >65%.

Effective: The improvement rate of total score≥26%, ≤65%.

Invalid: The improvement rate of total score<26%.

3.3 Result

3.3.1 Comparison of symptoms scores

There were no significant differences in comparing the symptoms scores between the two groups prior to the treatment ($P > 0.05$). After treatment, the symptoms scores were significantly improved in both groups ($P<0.05$); the improvements of scores of nasal stuffy, sneezing, and runny nose in the tuina group were statistically more significant than those in the Western medication group ($P<0.05$). The results indicate that the two treatment methods both can improve the major symptoms of AR, and the tuina treatment should be superior to oral administration of Loratadine (Table 3).

3.3.2 Comparison of signs scores

Before treatment, the between-group difference in comparing the score of swollen inferior nasal turbinate was statistically insignificant ($P>0.05$). After treatment, the scores of swollen inferior nasal turbinate dropped significantly in both groups ($P<0.05$); the between-group difference was also statistically significant ($P<0.05$). The results suggest that the two methods both can improve the condition of swollen nasal turbinate in AR kids, and the tuina method should be superior to the oral administration of Loratadine (Table 4).

Table 2. Criteria for scoring symptoms and signs

Item	0 point	1 point	2 points	3 points
Sneezing	No	3-5	6-10	≥11
Runny nose (daily frequency for blowing nose)	No	≤4	5-9	≥10
Stuffy nose	No	On clear consciousness	Intermittent or alternative	Breath with mouth almost everyday
Itchy nose	No	Intermittent	Formication, still tolerable	Formication, unbearable
Swollen nasal turbinates and mucosa	No	Mild swelling, visible nasal septum and middle turbinate	Inferior turbinate attached to nasal septum (or nasal base), or only little space between inferior turbinate and nasal base (or nasal septum)	Inferior nasal turbinate closely attached to nasal base and nasal septum, invisible middle turbinate, or polypoid or polyp in mucosa of middle nasal turbinate

Table 3. Comparison of the four major symptoms scores of AR before and after treatment ($\bar{x}$ ±s, point)

Group	*n*	Time	Stuffy nose	Itchy nose	Sneezing	Running nose
Tuina	30	Pre-treatment	2.37±0.67	2.40±0.68	2.27±0.74	2.37±0.73
		Post-treatment	0.90±0.55[1)2)]	1.63±0.62[1)]	1.00±0.59[1)2)]	1.03±0.62[1)2)]
Western medication	30	Pre-treatment	2.23±0.73	2.27±0.69	2.20±0.76	2.13±0.73
		Post-treatment	1.67±0.55[1)]	1.47±0.63[1)]	1.37±0.62[1)]	1.47±0.68[1)]

Note: Intra-group comparison, 1) $P<0.05$; compared with the control group after treatment, 2) $P<0.05$

Table 4. Comparison of the score of swollen nasal turbinates ($\bar{x}$ ±s, point)

Group	*n*	Pre-treatment	Post-treatment
Tuina	30	1.73±0.58	0.53±0.63[1)2)]
Western medication	30	1.97±0.67	1.50±0.63[1)]

Note: Intra-group comparison, 1) $P<0.05$; compared with the control group after treatment, 2) $P<0.05$

3.3.3 Comparison of therapeutic efficacy

After 4 treatment courses, the total effective rate was 90.0% in the tuina group versus 73.3% in the Western medication group, and the difference was statistically significant ($P<0.05$), indicating that the therapeutic efficacy of tuina treatment should be better than that of orally taking Loratadine (Table 5).

Table 5. Comparison of clinical efficacies between the two groups (case)

Group	*n*	Markedly effective	Effective	Invalid	Total effective rate (%)
Tuina	30	17	10	3	90.0[1)]
Western medication	30	2	20	8	73.3

Note: Compared with the control group, 1) $P<0.05$

4 Discussion

As a commonly encountered recurrent pediatric disease, AR can cause serious influence on kids' health condition[12]. It majorly belongs to type Ⅰ allergic reaction, mediated by IgE and mast cells. Triggered by allergens, the body will produce specific IgE antibody to bind to mast cells; when exposed to the same allergens, the sensitized mast cells will secrete certain mediators, of which, histamine is the main factor causing a series of AR symptoms such as itchy nose, sneezing, runny nose, and stuffy nose. Therefore, taking anti-histamine medications can tame most of the AR symptoms. With strong selective antagonism on peripheral histamine H_1 receptor and low affinity towards central histamine H_1 receptor, Loratadine can produce an efficient long-term action without central sedation or anticholinergic effect[13]. Hence, it's generally used for allergic diseases such as chronic urticaria and AR. Although Loratadien is effective in mitigating sneezing, itchy nose, and runny nose, its action on stuffy nose is not so satisfactory[14]. Despite of the advantages of Loratadine, its shortcomings still exist, including high relapse rate and side effects like drowsiness, fatigue, headache, and dry mouth.

Based on TCM theories and guided by the theory of meridians and collaterals, infantile tuina treats diseases by regulating the physical and pathological condition and activating the self regulatory effect of the body, via applying manipulations on specific acupoints and areas on the surface of human body. Stimulation to specific acupoints can promote the circulation of qi and blood, regulate and unblock the meridians and collaterals, modulate the function of Zang-fu organs, and balance yin and yang[15]. In the treatment of AR, infantile tuina therapy majorly adopts acupoints from the Governor Vessel, assisted by points from the Meridian of Large Intestine, and the points were selected from both distant and proximal areas.

As one of the three major infantile tuina schools in China, Liu's infantile tuina therapy was invented by the late infantile tuina expert Prof. Liu Kai-yun from the Medical School of Hunan Jishou Hospital[16-17]. The action mechanism of Liu's infantile tuina therapy combines the conceptions of traditional medicine and modern medicine. It's based on qi, and closely integrates and harmonizes qi, energy, and information. In the current study, supplementing spleen and lung, and tonifying kidney qi were taken as the major treatment methods. During the treatment, An-pressing and Rou-kneading Yintang (GV 29), Shangyingxiang (EX-HN 8), Yingxiang (LI 20), Hegu (LI 4), Quchi (LI 11), and Fengchi (GB 20) were used for regulating and unblocking qi and blood, dispersing external pathogens, and unblocking nasal cavity[18-20]; tonifying Feijing, Pijing, and Shenjing can supplement lung qi, promote the function of spleen and stomach, strengthen qi and blood, and supplement kidney and brain. Most of the kids showed improvements after tuina treatment, though the long-term efficacy requires further study.

This study was going to set up the standard infantile tuina treatment protocol for AR, to provide guidance for the treatment of infantile AR in clinic, and to promote the further development of infantile tuina therapy. As a natural physical therapy without causing adverse reactions, easily accepted by AR kids, tuina is worth promotion in clinic.

Conflict of Interest

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

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Statement of Informed Consent

Informed consent was obtained from all individual participants included in this study.

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