Bai WJ, Zhang Y, Liu YC, *et al*. Therapeutic observation on tuina at head and abdomen for headache due to phlegm turbidity. J Acupunct Tuina Sci, 2019, 17(5): 321-327
DOI: https://doi.org/10.1007/s11726-019-1131-x

**Special Topic Study**

# Therapeutic observation on tuina at head and abdomen for headache due to phlegm turbidity

## 头部及腹部推拿治疗痰浊型头痛疗效观察

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**Abstract**

**Objective:** To observe the clinical efficacy of tuina at head and abdomen for headache due to phlegm turbidity.

**Methods:** A total of 56 patients with headache due to phlegm turbidity were randomized into a tuina group and a Chinese medicine group by the random number table, with 28 cases in each group. The tuina group was treated mainly with tuina at the head and abdomen, while the Chinese medicine group was treated with oral administration of Ban Xia Bai Zhu Tian Ma Tang (*Pinellia, Atractylodes Macrocephala and Gastrodia* Decoction). The course of treatment was 30 d. The scores of headache index, traditional Chinese medicine syndrome scale, and the therapeutic efficacy were observed.

**Results:** There were 2 dropouts in each group during treatment. The total effective rate was 92.3% in the tuina group, significantly higher than 76.9% in the Chinese medicine group ($P$<0.05). The scores of headache index and traditional Chinese medicine syndrome scale in both groups decreased after treatment (both $P$<0.05), and scores in the tuina group were lower than those in the Chinese medicine group (both $P$<0.05).

**Conclusion:** Tuina mainly at head and abdomen is effective in treating headache due to phlegm turbidity, and has a better effect than Ban Xia Bai Zhu Tian Ma Tang (*Pinellia, Atractylodes Macrocephala and Gastrodia* Decoction).

**Keywords:** Tuina; Massage; Points, Chest & Abdomen; Points, Head & Neck; Dampness-phlegm Syndrome; Phlegm Syndrome; Ban Xia Bai Zhu Tian Ma Tang (*Pinellia, Atractylodes Macrocephala and Gastrodia* Decoction); Headache

**【摘要】目的：**观察头部及腹部推拿为主治疗痰浊型头痛的临床疗效。**方法：**将56例痰浊型头痛患者按随机数字表法分为推拿组和中药组，每组28例。推拿组接受头部及腹部为主的推拿治疗；中药组口服半夏白术天麻汤治疗。疗程30 d，观察两组治疗前后头痛指数评分、中医证候评分及临床疗效。**结果：**治疗过程中两组均脱落2例。推拿组总有效率92.3%，中药组总有效率76.9%，两组临床疗效具有统计学差异($P$<0.05)。两组治疗后头痛指数评分与中医证候评分均较本组治疗前下降(均$P$<0.05)，推拿组评分均低于中药组(均$P$<0.05)。**结论：**头部及腹部为主的推拿治疗痰浊型头痛有效，且疗效优于口服半夏白术天麻汤。

**【关键词】**推拿；按摩；穴位，胸腹部；穴位，头颈部；痰湿；痰证；半夏白术天麻汤；头痛

**【中图分类号】**R244.1　　**【文献标志码】**A

Headache is a common symptom. In recent years, the incidence of headache has increased year by year due to factors such as suboptimal health and fatigue[1]. Among them, most patients with headache due to phlegm turbidity are caused by obesity, drinking, staying up late and high-nutrition diet. The location of the disease is head and the cause is phlegm. The main features are headache, dizziness, oppression and fullness in the chest and stomach, torpid intake and nausea, a white and greasy tongue coating and a slippery pulse[2]. Abdominal massage is characterized by abdominal manipulation and adjustment of Zang-fu organs, with major indications of internal medical diseases[3]. Abdomen is closely related with head, Zang-fu organs, twelve meridians and eight extra meridians. It is the course of several meridians and their gathering place, especially the Thoroughfare Vessel, Conception Vessel and Governor Vessel. Therefore, abdominal massage has an important impact on the physiological function of the human body[4]. In this study, we observed the clinical efficacy of tuina at head and abdomen in treating headache due to phlegm turbidity.

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## 1 Clinical Materials

### 1.1 Diagnostic criteria

This study referred to the diagnostic criteria of headache due to phlegm turbidity in the *Guiding Principles for Clinical Study of New Chinese Medicines*[5]: manifested by headache like being wrapped around, vomiting of phlegm and mucus, stuffiness and a feeling of pressure in the chest and epigastrium; accompanied by reduced food intake, tastelessness, white slimy tongue coating and string-like slippery pulse.

### 1.2 Inclusion criteria

Those who met the above diagnostic criteria; aged 18-70 years old; no gender limited; agreed to participate in this trial and signed informed consent.

### 1.3 Exclusion criteria

Those with serious diseases of liver, kidney and/or hematopoietic system or psychiatric patients; had a history of using antipsychotics or antidepressants in the past three months; headache as a symptom of hypertension, brain trauma syndrome, and intracranial organic disease; women during pregnancy or preparing pregnancy or breast-feeding; those who were suspected or confirmed of alcohol or various drugs abuse; loss to follow-up due to unstable job or living environment; patients with headache of other special types.

### 1.4 Elimination and shedding criteria

Those who were found not meeting the inclusion criteria but included by mistake; those who did not come to the treatment as required; those who took other therapies additionally by themselves during the treatment which affected the efficacy judgment; those who developed other severe diseases during the trial.

### 1.5 Statistical method

All data were statistically analyzed by SPSS version 23.0 statistical software. Measurement data were expressed as mean ± standard deviation ($\bar{x} \pm s$), and *t*-test was applied for the mean comparison of two samples. The comparison of counting data was processed by Chi-square test. Rank-sum test was applied for the comparison of ranked data. $P<0.05$ was considered to indicate a statistically significant difference.

### 1.6 General data

A total of 56 cases were enrolled from the Rehabilitation Department of Hebei Provincial Hospital of Traditional Chinese Medicine (TCM). All patients were randomly divided into two groups by the random number table, with 28 cases in each group. During the treatment, 1 case in the tuina group was transferred to another hospital and unable to continue the treatment, and 1 case dropped out for no reasons. In the Chinese medicine group, 1 case was transferred to another hospital and unable to continue the treatment, and 1 case stopped the treatment due to developing a severe disease. The treatment flow chart of the two groups is shown in Figure 1.

The patients in the tuina group were aged 24-66 years, with the shortest duration of 6 months and the longest of 10 years. The patients in the Chinese medicine group were aged 22-63 years, with the shortest duration of 5 months and the longest of 10 years. There were no statistically significant differences in the general data between the two groups (all $P>0.05$), indicating that the two groups were comparable (Table 1).

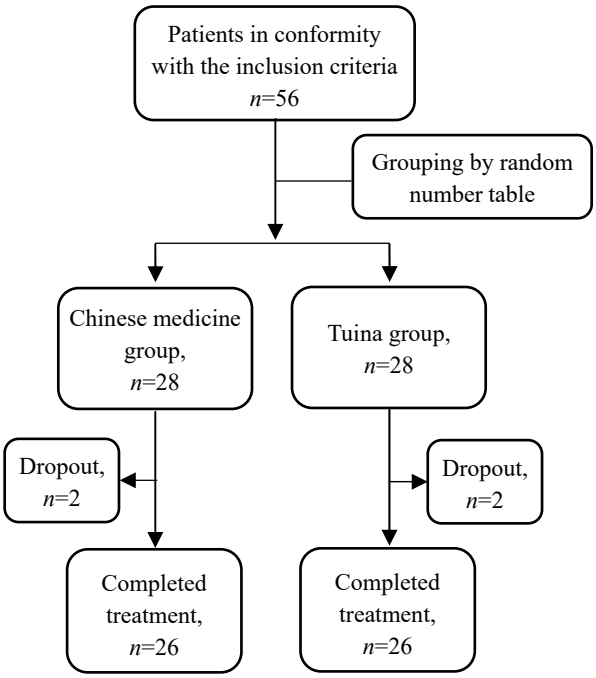


**Figure 1. The flow chart**

**Table 1. Comparison of general data between the two groups**

| Group | *n* | Gender (case) | | Average age ($\bar{x} \pm s$, year) | Average duration ($\bar{x} \pm s$, month) | State of the disease (case) | | |
|---|---|---|---|---|---|---|---|---|
| | | Male | Female | | | Mild | Moderate | Severe |
| Tuina | 26 | 8 | 18 | 48.9±11.9 | 30.8±23.8 | 11 | 10 | 5 |
| Chinese medicine | 26 | 9 | 17 | 47.8±10.8 | 31.6±24.2 | 13 | 9 | 4 |

 

## 2 Treatment Methods

### 2.1 Tuina group

Patients in the tuina group received tuina treatment at head, abdomen and lower limbs.

2.1.1 Tuina at head

Acupoints and areas: Tianmen, Kangong, Yintang (GV 29), Taiyang (EX-HN 5), Fengchi (GB 20), Baihui (GV 20), the side and top of the head.

Methods: Kai-opening Tianmen (straight Tui-pushing Tianmen), Tui-pushing front of the head, Fen-parting and Tui-pushing the forehead area, Tui-pushing Kangong, Tui-pushing Taiyang (EX-HN 5), Shu-combing the top of the head, Saosan-sweeping the side of the head, Zhua-grabbing five meridians, Na-grasping Fengchi (GB 20) and Jianjing (GB 21), fingertip Ji-tapping the head, and palm Ji-tapping Baihui (GV 20), (Figure 2-Figure 7).

2.1.2 Tuina at abdomen

Acupoints and areas: Lanmen, Jianli (CV 11), Qihai (CV 6), Zhongwan (CV 12), Tianshu (ST 25), Shenque (CV 8), left Zhangmen (LR 13), left Liangmen (ST 21) and the pancreas area (pancreas projection on the abdominal surface), and hypochondrium.

Methods: First, the physician one-thumb Tui-pushed, Dian-digital pressed, An-pressed and Rou-kneaded Lanmen. Then, the physician one-thumb Tui-pushed, Dian-digital pressed, An-pressed and Rou-kneaded Jianli (CV 11), Qihai (CV 6), Zhongwan (CV 12), Tianshu (ST 25), Shenque (CV 8), left Zhangmen (LR 13) and Liangmen (ST 21). And then the physician Fen-parted and Tui-pushed abdominal yin and yang, Rou-kneaded the pancreas area, Mo-rubbed the abdomen, Zhen-vibrated the abdomen, Cuo-twisted and Mo-rubbed hypochondrium, Ca-scrubbed Shenque (CV 8), Gun-rolled the abdomen clockwise, and Rou-kneaded and Tui-pushed the abdomen with the thenar (Figure 8-Figure 16).

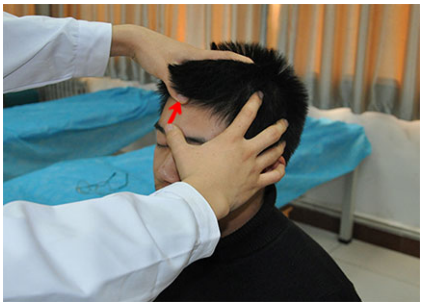

**Figure 2. Kai-opening Tianmen**

**Figure 3. Tui-pushing Kangong**

**Figure 4. Tui-pushing Taiyang (EX-HN 5)**

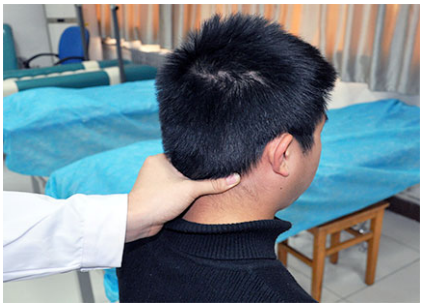

**Figure 5. Na-grasping Fengchi (GB 20)**

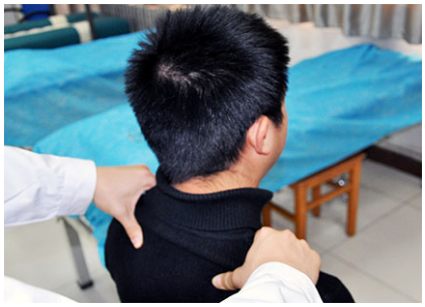

**Figure 6. Na-grasping Jianjing (GB 21)**

**Figure 7. Ji-tapping Baihui (GV 20)**

**Figure 8. One-thumb Tui-pushing Lanmen**

**Figure 9. One-thumb Tui-pushing Qihai (CV 6)**

**Figure 10. One-thumb Tui-pushing Zhongwan (CV 12)**

**Figure 11. Fen-parting and Tui-pushing abdominal yin and yang**

**Figure 12. Rou-kneading the pancreas area**

**Figure 13. Mo-rubbing the abdomen**

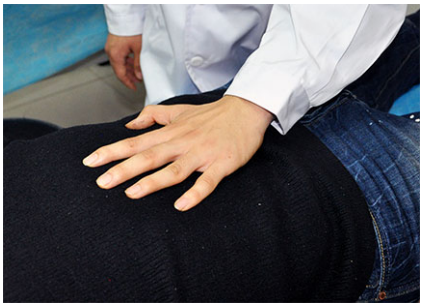

**Figure 14. Zhen-vibrating the abdomen**

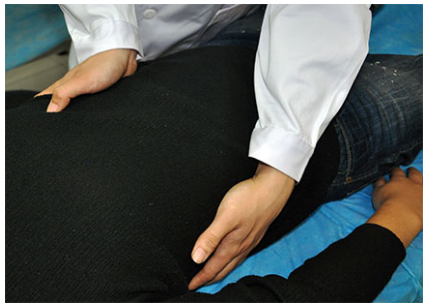

**Figure 15. Cuo-twisting and Mo-rubbing hypochondrium**

**Figure 16. Gun-rolling the abdomen clockwise**

2.1.3 Tuina at lower limbs

Acupoints: Zusanli (ST 36) and Fenglong (ST 40).

Methods: An-pressed and Rou-kneaded Zusanli (ST 36) and Fenglong (ST 40), (Figure 17).

**Figure 17. An-pressing and Rou-kneading Fenglong (ST 40)**

Treating time of tuina and the times of treatment were all based on the comfort of the patient, around 60 min per time once a day.

**2.2 Chinese medicine group**

Patients in the Chinese medicine group treated with oral administration of Ban Xia Bai Zhu Tian Ma Tang (*Pinellia, Atractylodes Macrocephala and Gastrodia* Decoction).

Ingredients: *Ban Xia* (*Rhizoma Pinelliae*) 4.5 g, *Tian Ma* (*Rhizoma Gastrodiae*) 3 g, *Fu Ling* (*Poria*) 3 g, *Ju Hong* (*Exocarpium Citri Rubrum*) 3 g, *Bai Zhu* (*Rhizoma Atractylodis Macrocephalae*) 9 g, *Gan Cao* (*Radix Glycyrrhizae*) 1.5 g, 1 slice *Sheng Jiang* (*Rhizoma Zingiberis Recens*) and 2 *Da Zao* (*Fructus Jujubae*).

Modification with syndromes: *Dang Shen* (*Radix Codonopsis*) and *Huang Qi* (*Radix Astragali*) were added for syndrome of qi deficiency; *Ze Xie* (*Rhizoma Alismatis*) and *Gui Zhi* (*Ramulus Cinnamomi*) were added for syndrome of excess dampness-phlegm; *Dan Nan Xing* (*Rhizoma Arisaematis Cum Bile*) and *Ju Hua* (*Flos Chrysanthemi*) were added for obvious dizziness.

Administration: 1 dose per day, decocted with water for 200 mL, and divided into 2 portions. Drank it warm in the morning and evening.

The therapeutic efficacy of both groups was observed after 30 d of treatment.

## 3 Observation of Curative Efficacy

Each item was evaluated before treatment and after 30 d of treatment.

**3.1 Observation items**

According to the *Guiding Principles for Clinical Study of New Chinese Medicines*[5], the observation items of this study were developed.

3.1.1 Pain

Degree of pain: Visual analog scale (VAS) was used to assess the degree of pain. A 10 cm ruler was marked '0' and '10' respectively on the left and right ends to represent no pain and worst possible pain. The patient was asked to mark the corresponding point on it to represent the degree of pain. The score was assessed by the distance between the marked point and the '0' point. The scoring criteria were as follows.

 

1 point: ≤2 cm; 2 points: >2 cm, ≤4 cm; 3 points: >4 cm, ≤6 cm; 4 points: >6 cm, ≤8 cm; 5 points: >8 cm, ≤10 cm.

Pain duration: The pain duration of each time was scored according to the following criteria.

1 point: pain duration ≤2 h; 2 points: pain duration >2 h, ≤6 h; 3 points: pain duration >6 h, ≤24 h; 4 points: pain duration >24 h, ≤72 h; 5 points: pain duration >72 h.

Headache index: The headache index equaled to the result that the score of pain degree of each attack multiplies by the pain duration score. The observation period was 7 d before treatment and 7 d after treatment. For example, a patient had a headache for 2 times within 7 d, the first score of pain degree was 4 points, and the pain duration score was 3 points; the second score of pain degree was 2 points, and the pain duration score was 1 point; by calculating, the headache index was 4 ×3+2×1=14 (points).

Degree of headache: Headache index ≥17 points was severe headache; headache index ≥12 points, but <17 points was moderate headache; headache index ≥7 points, but <12 points was mild headache; headache index <7 points was no headache.

3.1.2 TCM syndrome scale score[5]

Patients were questioned about TCM symptoms and signs in a unified way, and asked to answer honestly, and the questioner recorded it truthfully. The sum of all item scores was the TCM syndrome score (Table 2). The TCM syndrome score was up to 36 points. The higher the score, the severer the symptoms.

**Table 2. TCM syndrome scale**

| Symptom | 0 point | 2 points | 4 points | 6 points |
|---|---|---|---|---|
| Headache | None | Mild | Bearable | Unbearable |
| Heavy sensation of head | None | Slightly heavy sensation | Heavy sensation like being wrapped around | Heavy and tight sensation |
| Oppression in the chest | None | Mild | Obvious | Suffocating oppression in the chest |
| Vomiting | None | Nausea with thin phlegm | Nausea with a desire to vomit | Nausea and vomiting |
| Tastelessness | None | Tastelessness | More severe tastelessness | Tastelessness without a desire to drink |
| Reduced food intake | None | A little reduced | Reduced | Reduced a lot |

**3.2 Criteria of curative efficacy**

According to the *Guiding Principles for Clinical Study of New Chinese Medicines*[5], the criteria of curative efficacy of this study were developed.

Cured: Headache and the accompanied symptoms completely disappeared, with no recurrence 1 month after stopping the medicine.

Marked effect: Headache relieved, and the accompanied symptoms relieved. The attacks decreased or duration of headache reduced by ≥2/3.

Effective: Headache relieved, the interval between attacks was prolonged or the duration of headache was reduced by ≥1/3, but <2/3.

Invalid: The degree of headache was not relieved, the duration of headache was reduced by <1/3, or the headache was even aggravated, and the duration of pain was prolonged.

**3.3 Results**

3.3.1 Clinical efficacy

The total effective rate was 92.3% in the tuina group versus 76.9% in the Chinese medicine group, and the difference between the two groups was statistically significant ($P$<0.05). By rank-sum test, the comparison result suggested that the difference in curative efficacy between the two groups was statistically significant ($P$<0.05), indicating that the tuina group was superior to the Chinese medicine group (Table 3).

**Table 3. Comparison of clinical efficacy between the two groups (case)**

| Group | $n$ | Cured | Improved | Effective | Invalid | Total effective rate (%) |
|---|---|---|---|---|---|---|
| Tuina | 26 | 3 | 15 | 6 | 2 | 92.3[1)] |
| Chinese medicine | 26 | 2 | 11 | 7 | 6 | 76.9 |

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

3.3.2 Score of headache index

After the treatment, the result of intra-group comparison suggested that there were statistically significant differences in headache index score in both groups (both $P$<0.05). After the treatment, the difference in the score of headache index between the two groups was statistically significant ($P$<0.05), and the tuina group was superior to the Chinese medicine group (Table 4).

3.3.3 Comparison of TCM syndrome score

After the treatment, the result of intra-group comparison suggested that there were statistically significant differences in TCM syndrome score in both groups (both $P<0.05$). After the treatment, the difference in TCM syndrome score between the two groups was statistically significant ($P<0.05$), and the tuina group was superior to the Chinese medicine group (Table 5).

**Table 4. Comparison of headache index between the two groups before and after treatment ( $\bar{x}$ ±s, point)**

| Group | *n* | Before treatment | After treatment |
|---|---|---|---|
| Tuina | 26 | 16.35±4.01 | 7.73±3.36[1)2)] |
| Chinese medicine | 26 | 16.23±4.14 | 11.92±4.21[1)] |

Note: Compared with the same group before treatment, 1) $P<0.05$; compared with the Chinese medicine group after treatment, 2) $P<0.05$

**Table 5. Comparison of TCM syndrome score between the two groups before and after treatment ( $\bar{x}$ ±s, point)**

| Group | *n* | Before treatment | After treatment |
|---|---|---|---|
| Tuina | 26 | 20.27±3.76 | 7.15±2.79[1)2)] |
| Chinese medicine | 26 | 20.04±3.60 | 12.08±2.60[1)] |

Note: Compared with the same group before treatment, 1) $P<0.05$; compared with the Chinese medicine group after treatment, 2) $P<0.05$

## 4 Discussion

The brain is located in the head, and is the sea of marrow, nourished by the essence qi and blood from Zang-fu organs. Headache often occurs when the spleen fails to transport and transform, leading to internal turbid phlegm to obstruct the flow of qi and mist the mind[6]. Modern medical studies hold that headache with phlegm turbidity syndrome should be caused by dysfunctions of the lung, liver, kidney and spleen, resulting in disorder of water metabolism, which leads to deposition of pathological metabolites[7-8]. The abdomen is located in the middle of the human body and is the hub of qi and blood. Wang WJ, *et al*[9] found that abdominal massage could treat diseases of the twelve major systems. The meridians of the body are closely related with the abdomen[10]. Abdominal massage applied at the meridians and acupoints on the abdomen can treat diseases by regulating the qi and blood transporting of the twelve meridians and Zang-fu organs[11].

In this study, Fengchi (GB 20) and Baihui (GV 20) were treated in tuina at the head to unblock meridians and activate collaterals, and regulate qi and blood, which was the selection of local points for treating headache[12]. Modern medical study found that tuina at head acupoints such as Fengchi (GB 20) could increase the blood flow of the common carotid artery, improve the blood supply to the brain tissues, and relieve headache[13].

TCM believes that spleen is the postnatal foundation, and abdomen is the key part of various diseases. The dysfunctions of spleen and stomach causes various diseases[14]. The six Fu organs are located in the abdomen, and the spleen and stomach belong to middle Jiao, which is the hub of upward and downward movement of qi. The spleen controls upward movement, and the stomach controls downward movement. If the function of the spleen and stomach is normal, the clear will go upward and the turbid will go downward, the qi transformation will be normal, and the qi and blood will be adjusted and circulate normally. If the function of the spleen and stomach is abnormal, the phlegm turbidity will generated internally, going upward to disturb the clear yang and obstruct collaterals and meridians of the head, which induces headache. Abdominal acupuncture theory believes that the abdomen, with Shenque (CV 8) as the center, is the second brain of the human body and another circulatory system related to qi and blood circulation of the whole body. By stimulating the acupoints on the abdomen, the balance of the Zang-fu organs can be adjusted and diseases can be treated[15]. Acupoints on the abdomen mostly belong to the Conception Vessel, Kidney Meridian, Spleen Meridian and Stomach Meridian. Lanmen is the experiential point in clinic, hub of qi movement of the whole body. Dian-digital pressing and Rou-kneading Lanmen can make the turbid qi decline and the clear yang rise. Zhongwan (CV 12) is the Front-Mu point of the stomach, which can harmonize the stomach and resolve phlegm. Jianli (CV 11) and Qihai (CV 6) can strengthen the spleen to harmonize the stomach and move qi to resolve phlegm. Tianshu (ST 25) can unblock the intestines and remove food stagnation. Zhangmen (LR 13) can regulate qi to dissipate stagnation, and clear dampness-heat. Liangmen (ST 21) can harmonize the stomach and regulate qi, fortify the spleen and regulate the middle part. Modern anatomy confirms that there are abundant visceral plexus in the abdomen, including celiac plexus, abdominal aortic plexus and hypogastric plexus[16]. Abdominal massage has a good effect of regulation by stimulating the abdominal nerves and the abdominal aorta. Fenglong (ST 40), the selected acupoint on lower limb, is the key point to resolve phlegm. It can invigorate spleen for resolving phlegm, harmonize stomach for descending adverse qi, and dissipate phlegm for resuscitation[17-18]. Heavily An-pressing Zusanli (ST 36) with thumb can harmonize stomach for descending adverse qi, dissipate phlegm and dispel dampness, and make body strong and healthy[19]. The combination of these acupoints could regulate Zang-fu organs and qi movement,

 

dissipate phlegm and downbear the turbid, to treat headache due to phlegm turbidity[20].

Headache due to phlegm turbidity is characterized by pain in the head as a symptom and the phlegm-turbidity as the root cause. Therefore, the main manipulations applied in this study were tuina at head and abdomen. Tuina at head was to unblock the meridians and collaterals, and relieve tension and pain to treat the superficial symptoms. Tuina at abdomen was to invigorate the spleen and resolve phlegm, move qi for removing food stagnation, downbear the turbid and relieve pain, to treat the root. The results in this study indicated that the clinical efficacy of tuina group was superior to that the Chinese medicine group, and so did the improvement in headache index and TCM syndrome scores. Therefore, tuina at head and abdomen, as a traditional clinical manipulation skill, should be seriously respected and promoted.

**Conflict of Interest**

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

**Acknowledgments**

This work was supported by Project of Hebei Provincial Administration of Traditional Chinese Medicine (河北省中医药管理局项目, No. 7002017012029).

**Statement of Informed Consent**

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

Received: 23 February 2019/Accepted: 19 March 2019

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