

# *Progress of Clinical Research in the Past Ten Years on the Treatment of Pediatric Pneumonia by Acupuncture and Tuina in Chinese Medicine*

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**Abstract:** Pneumonia is a chronic nonspecific inflammation of the mucosa of the trachea, bronchi and their surrounding tissues, clinically characterized by cough and sputum as the main symptoms, or wheezing, with an annual onset lasting 3 months or longer for 2 or more years, and excluding other diseases with symptoms of cough, sputum and wheezing. Pediatric pneumonia is a respiratory disease that occurs in infants and young children under 5 years of age, and its incidence is high, which seriously affects the health of children. In this paper, we summarize the recent ten years of research progress of various schools of thought and other therapies for the treatment of pediatric pneumonia, with the aim of providing some theoretical reference for the clinical treatment of pediatric pneumonia in Chinese medicine, with respect to the characteristics and clinical application of the external therapies of Chinese medicine.

## **1. Identification and Treatment of Pediatric Pneumonia by Acupuncture and Tuina**

Pneumonia and coughing is one of the common pulmonary diseases in childhood, originally meaning a type of symptom written in the book "The Complete Book of the Living People of Ma Ke" by Xie Yuqiong, a famous doctor of the Qing Dynasty, in the course of measles, which manifests as high chest, shortness of breath and nasal incitement due to the unclearness of heat and stagnation of lung qi. The disease often occurs in spring and winter, but can also occur at any time of the year; the incidence is inversely proportional to the age of the child, and the more severe cases of pneumonia are easily combined with serious changes such as heart-yang deficiency and evil trapped in the heart and liver, and even life-threatening. The pathogenic mechanism is the development of lung qi stagnation and closure, with lesions mainly in the lung and spleen, but also

involving the heart and liver; phlegm-heat is both a pathological product in the pathogenesis of pneumonia and asthma, and an important pathogenic factor in causing pneumonia in children. For paediatric pneumonia, Chinese medicine acupuncture and tuina have clear efficacy in clinical applications.

From the point of view of acupuncture therapy, people are familiar with the advantages of acupuncture and thrust treatment of very many types of diseases, and the effect of acupuncture and thrust to give full confidence and affirmation, and the reason for the efficacy of acupuncture and thrust, lies in the strict grasp of the type of evidence, due to physical characteristics, pediatric pneumonia clinical more to wind-heat closed lung common, wind-cold closed lung less or for a short period of time, so should be familiar with the mastery of the identification and treatment of pediatric pneumonia, to "Acupuncture as if there is a god, massage to relieve the pain of the disease".

Wind-heat closed lung evidence: the symptoms can be seen in the child's body heat, coughing and shortness of breath, sticky and yellow sputum, often thirst, red throat and tongue, dry stool and yellow urine, the treatment of Xu Beichen[1]'s massage method: first pushing the Sanguan point, then supplementing the spleen meridian, retreating the six internal organs, clearing the lung meridian, pressing and rubbing the Tianshu point and Tanzhong point to regulate the large intestine, after pushing the Tanzhong point and Lung Yu point to broaden the chest and regulate the qi, promote the lung and stop coughing, then rubbing the The results showed that TCM treatments could improve the signs and symptoms of pneumonia patients from multiple targets, multiple sites and different mechanisms. Chen Lingfan[2]used Liu's Tui Na method: open the Tian Men and push the Kan Gong; push the five meridians: clear the spleen meridian, clear the liver meridian, clear the heart meridian, clear the lung meridian, and tonic the kidney meridian; the acupuncture technique was used to exacerbate the lung acupoint and tonic the kidney acupoint; the mother was tonic and the son was dipped to achieve the attack of clearing heat and promoting the lung; the results: the total efficiency of the two groups was 99%, and the total efficiency of the group using Western medicine alone was 87.4%, the treatment period was significantly shortened, and the self-immunity of the children was improved. The treatment period was significantly shortened and the immunity of the children was improved, which was significantly better than oral medicine alone. Wang Lili [3] used acupressure points to massage double Hegu, Quchi and Lung Yu, each point was pressed for about 3 min; then pushed Tianzhu, retreated the six internal organs, cleared the lung meridian, and acupuncture Quchi to perform diarrhea, the results: clinical efficacy was better than the control group. This proves the efficacy of using acupressure points on top of symptomatic treatment in Western medicine to treat wind-heat closed lung type cough. Jiang Qinghua[4]used the Chinese herbal soup Qinghe Pingye Tang with the addition of tui-na techniques: pushing Sanguan, pressing and rubbing Tianshu and Tanzhong, pushing Tanzhong and Lung Yu, rubbing Erfanmen, rubbing Sun, and kneading the spine, all 50 times, and stabbing the lung acupoints superficially after the tui-na. The results: tui-na clearing the lung meridian has the effect of stopping cough and dispelling phlegm, promoting the lung and relieving symptoms, dispelling wind, stopping cough and resolving phlegm, which strengthens the function of Qinghe Pingye Tang in clearing heat and relieving cough and tonifying the lung to stop cough [5].

Wind-cold closed lung evidence: children's bodies are pure Yang, infantile Yin and Yang, so clinical pediatric lung disease manifested as more heat evidence, more concurrent evidence, more evidence of change, easy to hurt the Yin liquid, although the clinical pediatric pneumonia wind-cold closed lung evidence is rare, and often easy to mixed with deficiency, the author believes that more accurate identification of evidence, in order to treat the evidence, the child common malignant cold fever, sweating, coughing and wheezing, sputum less clear, light red tongue, thin white moss, pulse floating tight. The treatment should be based on dispelling wind and relieving cough and dispersing

cold in the lung. Xu Haozen [6] combined the nebulizer inhalation with Tui-Na techniques: clearing the lung meridian, tonifying the spleen meridian, cultivating earth and generating gold; pushing San-Guan, rubbing Wai-Lau-Gong, warming Yang and dispersing cold, raising Yang and lifting sunkness, generating sweat and relieving symptoms; Xiao-Huang-Zheng is the key point for treating cough and asthma, combined with rubbing Tan-Zhong, Breast Root and Breast Side to expel phlegm and calm asthma, and acupuncture points: tonifying the spleen and lung acupoints, dipping Qu Chi. Results: The total effective rate of the Tui Na treatment group was 92.5%, and the effective rate of the Western medicine treatment group was 77.5%, with significant differences between the two groups, which proved the exact efficacy of Tui Na acupuncture. Zhao Xingwei [7] et al. performed reverse internal eight trigrams, rubbed Neiguan, chiropractic 10 times, divided thoracic yin and yang, divided shoulder nail, and the tui-na technique of tui-na twice a day after tonic spleen and lung clearing techniques, and acupuncture flat tonic and flat diarrhea Fengmen points. RESULTS: The efficiency of the treatment of wheezing in wind-cold closed lung type pneumonia was improved, and the number of treatments could be effectively reduced to improve the quality of life of the children. Cheng Jianhu et al [8] used acupuncture to treat the patient's lung function, inflammatory factors and lung images in the treatment group compared with the control group.

Phlegm and heat close the lung: "All diseases are caused by phlegm", pediatric pneumonia often accumulates the three organs of the lung, spleen and kidney, phlegm and drink is the pathological product of the pathogenesis of pediatric pneumonia, and is also the causative factor, which is the main pathological basis of the disease that is difficult to heal, recurrent and complex. In Western medicine, the diagnostic criteria for pediatric bronchopneumonia in Pediatrics [9] are: fluctuating fever, coughing and wheezing, sputum, and a fine to moderate rales on lung auscultation, with lung X-rays showing two lower lungs or unilateral patchy shadows. The diagnostic criteria in Chinese medicine are mostly fever or low fever irritability, phlegm sound in the larynx, thick and yellow coughing sputum, breathlessness, nasal agitation, and blue lips. Wang Lizhao [10] used rubbing Yingxiang point, palm rubbing method to rub hot Fengchi point, finger soft method to rub Tiantu, breast root, breast side, Guixuan and Tanzhong points, abdominal massage and abdominal rubbing, pushing abdominal yin and yang, pointing method to point Tianshu, Zhongguan, Eating Guan, Spleen Yu and Stomach Yu, back "Gong" back rubbing, rubbing hot until local skin flushing. RESULTS: The time to improvement of lung rales in the tui na group was significantly less than that in the control group, while the time to fever reduction was less than that in the control group (  $P < 0.05$ ). Qiao Ming [11] et al. performed acupuncture and tonic-diarrheal techniques at the Sijian acupoint to assist in the treatment of phlegm-heat closed lung type of childhood pneumonia. Squeeze the needle hole with both hands, squeeze out the rice-sized blood droplets or yellow-white transparent mucus, after the operation is completed, wipe the blood with sterile cotton balls, iodine attached to the cotton swab disinfection, and ask the child to maintain hand hygiene to prevent infection. Needling once every other day, 4 times for a course of treatment. RESULTS: Acupuncture at Sijuan acupoint can effectively improve the clinical symptoms of children with phlegm-heat closed lung pneumonia, reduce the number of days of antibacterial drug treatment and hospitalization, and significantly reduce the serum hs-CRP level.

Toxic-heat closed lung evidence: In ancient times in China, the term "toxic evil" was first used, and in the Han Dynasty, Xu Shen's "Shuowen Jiezi" said, "Toxic, also thick, is a harmful herb that often grows." With the deepening of people's understanding of the concept of poisonous evil, people have expanded the meaning of poisonous evil as a special type of pathogenic factors that are harmful to the body, easily cause the destruction and loss of body functions, cause changes in the body to aggravate and difficult to intervene, and belong to the category of etiology and pathogenesis [12]. Poisonous evil generally does not occur alone [13], often with other evil causes disease, and

heat is more common, so it is called "toxic fever". Poisonous fever closing the lung is a serious disease, the child often manifests as follows: the lung fever is so intense that the promotion and purification of the lung is out of order, resulting in continuous high fever, severe wheezing and coughing; the large intestine and the lung are on the surface, the poisonous fever consumes fluid and injures fluid, then the lips are red, irritable and thirsty, constipation, the heat and poison are so strong that the lung Qi is closed and the tongue is red and dry, with yellow and dry coating. Treatment is often based on the combination of Huang Lian Detoxification Tang and San Wu Tang with addition and subtraction to clear heat and detoxify the lung and open the lung. Professor Wang Xuefeng [14] clinically emphasizes clearing heat and detoxifying the toxin, dipping the lung and opening the lung, and at the same time activating blood circulation and resolving blood stasis. Commonly used above plus safflower, peach kernel, Dan Shen, Curcuma longa treatment, and add raw rhubarb, Xuan Ming powder to vent heat from the internal organs, to make sure that the development of the disease as soon as possible to cut off, to prevent pneumonia change evidence occur. The external treatment method [15] advocates the external treatment of Chinese medicine to make the drugs penetrate through the skin plus the use of pediatric massage, through the acupuncture points from the surface to the inside, through the meridian circulation directly to the internal organs to improve the function, so as to achieve the function of driving away evil and replenishing the lung. By pushing the lung acupuncture point, using the kettle bottom, the lung real drainage large intestine acupuncture point, etc., so that the evil to remove the heat and cough and asthma since the calm, and at the same time with acupuncture therapy, such as diarrhea Shang Yang, Hegu and other large intestine meridian points, in order to clear the heat and pass the internal organs, auxiliary treatment. RESULTS: The deterioration of the disease can be cut off from the early stage, shortening the course of the disease and improving the therapeutic effect [16].

Yin deficiency and lung heat evidence: children with toxic heat offending the lung or pneumonia that does not heal for a long time are prone to develop and extend into Yin deficiency and lung heat evidence, which is common in clinical practice. Zhang Yanmei et al [17] used acupuncture points (lung acupoint, danzhong, Ding gas, and foot sanli) to treat pediatric cough variant asthma, fully reflecting the TCM theory of "internal disease and external treatment, the same path" and "external treatment can compensate for the deficiency of internal treatment". The long-term effect is more significant and achieves the fundamental effect of both primary and secondary treatment [18].

Spleen and Lung Qi deficiency: This disease is most often seen in children recovering from pneumonia. Clinical symptoms are often characterized by low fever with variable fluctuations and prolonged coughing, which depletes the Qi of the lung and spleen, and weakness of the lung Qi results in a less flushed face and more sputum that cannot be easily coughed out. Xiao Rong [19] and other practitioners of TCM combined internal and external treatment, rubbing Tanzhong, Lung Yu, Spleen Yu and Foot Sanli, using talcum powder as a massage medium, applying massage techniques such as kneading, rubbing, pushing and transporting, and kneading the spine while lifting Spleen Yu, Lung Yu, Kidney Yu and other acupuncture points to regulate the qi of the internal organs, so as to achieve the purpose of tonifying the qi and strengthening the spleen, promoting the lung and relieving cough. RESULTS: The TCM symptom score was significantly lower than that of the control group, and the overall efficiency was significantly higher than that of the control group, suggesting that the combined internal and external treatment of TCM is of high value in the treatment of pediatric pneumonia. Du Boying [20] et al. used Yu Ping Feng granules combined with Tui Na to treat lung spleen qi deficiency evidence, Tui Na used talcum powder as the medium, using the thumb and index finger to pinch the child's thumb, using the right thumb to push from the tip of the child's thumb to the root of the thumb, from the end fingerprint of the child's ring finger on the palm side to the tip of the finger, and from the tip of the child's ring finger to the end fingerprint of the palm side, running the palm around the Laogong point clockwise or

counterclockwise; the transverse wrist line pushed to the transverse elbow line Tian The thumbs pressed and rubbed the ulnar side of the small transverse stripe point under the root of the little finger on the palm surface; the palms massaged 4 inches above the umbilicus; and the lung points on both sides of the spine were pushed. RESULTS: Tui Na can improve and adjust the humoral and cellular immune functions and effectively promote the normalization of immune function. Wang Lizhao et al [21] studied the inhibitory effects of Tui Na on the pro-inflammatory factors TNF- $\alpha$  and IL-6 in pneumonia: Tonic Spleen Meridian, Tonic Lung Meridian, Tonic Spleen Meridian, Tonic Lung Meridian, Inner Bagua, Foot San Li, and Small Transverse Palm Stripe were selected. The treatment was carried out using pushing, holding, moistening, transporting and kneading techniques with talcum powder as the medium. The overall symptoms of the children improved after treatment, and the TNF- $\alpha$  and IL-6 levels in the Tui Na group were significantly lower than those in the control group after treatment.

## 2. Acupuncture and Tuina Treatment of Pediatric Pneumonia

Pediatric bronchopneumonia is a common clinical disease, the course of the disease is prone to heart Yang deficiency decay evidence, often life-threatening, so it should be recognized and prevented in a timely manner. The heart yang deficiency is due to severe occlusion of lung qi, involving the heart, blood stasis and pulse obstruction, heart loss of nourishment, insufficient generation of zong qi, resulting in shortness of breath, restlessness, bluish lips, and even easy to produce hypochondriac masses; heart yang deficiency, unable to warm the face and limbs, the face is pale, the extremities are cold; the tongue is purple and dark, white coating, pulse is weak and rapid, fingerprints are blue up to the vital pass, in order to facilitate observation, timely detection, from the following symptoms and signs (1) Sudden restlessness and crying (in newborns, the cry is weak, like a moan); (2) Pale or purple skin, cold extremities, especially the fingers (toes); (3) Weak pulse, more than 160 beats per minute under quiet conditions; (4) Dull heart sounds or galloping rhythm, enlarged heart borders; (5) Shortness of breath, more than 60 beats per minute; (6) Liver in a short period of time (6) Liver enlarges significantly within a short period of time, with dull edges and pressure pain; (7) Urinary edema. The presence of two of the above symptoms and signs can be diagnosed as deficiency of heart yang [22]. Especially when the heat toxin is hot, high fever does not subside, the body is weak, the breath is suffocating and wheezing, the tongue is red and vivid, should be given sufficient attention. In addition, intravenous infusion of Sheng Wei Jing or compound Dan Shen injection can be used to replenish the Qi and revitalize the blood vessels. External treatment [23] is often used to select acupuncture points such as Tiantu, Dazhi, Tanzhong and Shenqu. Stimulation of Tiantu acupuncture point was mainly used to treat asthma and cough and sore throat, with the effect of broadening the chest and regulating Qi, lowering phlegm and promoting the lung; stimulation of Dazhi acupuncture point was mainly used to treat cough and wheezing and improve the deficiency of the child; stimulation of Tanzhong acupuncture point was mainly used to treat dyspnea and cough and wheezing, with the effect of blocking the evil Qi and promoting the right Qi; stimulation of Shenqu acupuncture point had the effect of pui-yuan and consolidating the root, returning Yang and rescuing the detachment. RESULTS: Chinese medicine staging and identification combined with external treatment can significantly improve the treatment efficiency and is worthy of clinical application. Although the other variant of evil trapped in the sympathetic yin is not common clinically, the key points of identification should still be accurately grasped, and the identification is strong heat and mental fainting convulsions, and the treatment is mainly to calm the liver and calm the wind, clear the heart and open the orifices.

### 3. Other Chinese Medicine External Treatment Method

The vast history of Chinese medicine, not only the needle pushing and massage external rule, but also from the long-term observation of the human body using Chinese medicine thinking development derived from a variety of Chinese medicine external treatment method to treat the disease, the advantage is not drug internal damage to the internal organs, and significant efficacy, the author in this paper will introduce several clinical treatment of pediatric pneumonia commonly used in Chinese medicine external treatment method.

Acupuncture point dressing: for the type of pneumonia wheezing and coughing phlegm-heat closed lung, the conventional treatment is rhubarb and mannitropin dressing, the theoretical basis of the dressing treatment is the Vujiu dressing, and combined with the theory of Chinese medicine, so that it is consistent with the development of modern medicine, is a form of external Chinese medicine treatment [24], Xiao Rong et al [25] used rhubarb and mannitropin to dress the lung acupoint, tiantu and danzhong points, the results: the hospitalization time of children with pneumonia was shortened, and There was a promotion effect on the recovery of the organism. Chen Juan [26] et al. treated children with wind-cold closed lung type, using dry ginger, white mustard seed, and fine pungent medicine, and compressing the Dazhi and Tiandu points during the acute period, and the Shenqu and Tanzhong points during the recovery period; results: the clinical cough disappearance time, body temperature recovery time, and lung rales disappearance time were shorter in the treatment group than in the control group ( $P < 0.01$ ), indicating that the external treatment method combined with staged identification treatment was more effective without serious adverse effects. Zhang Shuying [27] treated a child with wind-heat closed lung type by applying Chinese herbal acupuncture point compresses with 30g each of jinyinhua, forsythia, peppermint, rehmannia, ephedra and roasted licorice. The compresses were applied to the following acupuncture points: lung Yu (both sides), tiantu, Ding wheezing (both sides), danzhong and aye-acupuncture points (where the lung rales were dense). Results: The decrease of peripheral blood leukocytes (WBC), C-reactive protein (CRP) and interleukin 6 (IL-6) levels was more obvious in the treatment group than in the control group. This indicates that acupressure has unique advantages in improving pulmonary blood circulation, improving immunity, reducing airway reactions, and improving lung function and cardiac function. Similar to acupoint dressing, there are also traditional Chinese medicine transdermal injection and traditional Chinese medicine collapse therapy, which have achieved good results in the clinical treatment of pediatric pneumonia.

Flash cupping and moxibustion: as a method of cupping, flash cupping involves repeated suction and cupping of the jar to enhance cellular permeability, capillary dilation, and specific and non-specific immune function; Jiang Yuxiu [28] combined flash cupping with conventional Western medicine treatment: exposing the bladder meridian and the dou chakra on the back and applying local lubricant along the foot solar bladder meridian and the dou chakra. The cupping jars were used to expose the dazi, Ding gas, Fengmen, Lung Yu, Groom of the Bedchamber, Spleen Yu and Lung Base (A-Yi point). RESULTS: The combined method of flashing cupping along the meridians accelerated the absorption of inflammation and promoted local metabolism in the treatment of pediatric pneumonia with wind-heat closed lung evidence, resulting in better clinical therapeutic effects. "The warming effect of moxibustion can fully stretch the capillaries and promote the acceleration of blood circulation, so that the medicinal properties of the herbs contained in moxibustion can penetrate to the moxibustion acupuncture points to the greatest extent and follow the meridians to the place of disease, Liu Chengquan et al [29] advocated the treatment of recurrent respiratory tract infections in children with moxibustion followed by drug application, and Zhai Xiaohui et al used moxibustion for the treatment of wind-cold closed lung type of pediatric pneumonia, moxibustion of Dazhi, Lung Yu, Spleen Yu, and Tanzhong acupuncture

points, and the results: reduced the symptoms of coughing and asthma in children and contributed to the cure of the disease.

#### 4. Discussion

The author summarized the external treatment methods of Chinese medicine in the past 10 years, mainly acupuncture, moxibustion and massage for the treatment of pediatric pneumonia and cough. Especially when the patient is an infant or young child, he or she may not be able to express his or her sensations, so it is necessary for the physician to have rich clinical experience and a deep foundation in Chinese medicine to identify and treat the symptoms. The article also found some shortcomings, some types of evidence, serious and urgent cases have not been researched and discussed, many Chinese medicine external treatment methods such as moxibustion and cupping therapy are not widely used clinically, only limited to some special cases; acupuncture in pediatric clinical application is obviously less than tui na, do not exclude the acupuncture therapy for children is too irritating difficult to accept, at the same time, if the use of stay acupuncture method in children to administer treatment is more difficult. However, the author would like to use TCM external treatment methods to solve the research and clinical application of various diseases in children. This paper only discusses the diagnosis and treatment of TCM, but not the treatment of pneumonia in children from the five elements theory of TCM and the physical constitution theory of TCM. This is something that needs to be improved in the future.

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