

Exploring the Treatment of Infantile Spasmodic Cerebral Palsy from the Perspective of the Spleen Based on the Theory of "the Spleen Governing the Limbs"

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Abstract: Infantile spasmodic cerebral palsy, also known as infantile cerebral palsy, is a kind of motor and postural disorder caused by non-progressive injury due to underdeveloped immature brain under the influence of various reasons. Modern medicine mainly adopts surgical operations, rehabilitation training and other methods for treatment. According to the basic theory of traditional Chinese medicine, "the spleen governs the limbs". The spleen provides nourishment for the limbs and muscles by transporting and transforming fine substances of grains and water. When the spleen's transportation and transformation function is dysfunctional, symptoms such as limb weakness and muscle atrophy will appear, which is similar to the manifestations of infantile spasmodic cerebral palsy. Based on this, this article attempts to discuss the treatment of infantile spasmodic cerebral palsy from the perspective of "spleen".

1. Introduction

Pediatric cerebral palsy is referred to as "five softnesses" in traditional Chinese medicine, which includes softness of the head, neck, hands and feet, muscles, and mouth. It is also known as "fetal weakness", "fetal timidity", or "white idiocy". This condition is primarily caused by prenatal and postnatal damage to the central nervous system function of newborns due to various reasons, leading to clinical manifestations such as drooling, delayed development, abnormal muscle strength and tone, abnormal primitive reflexes, and loss of pathological reflexes [1].

The incidence of pediatric cerebral palsy varies depending on different regions, ranging from 1% to 5%. Since 1988, China has conducted multiple epidemiological surveys on pediatric cerebral palsy. One such survey revealed that between 2005 and 2010, among 323,858 children aged 1 to 6

in 12 provinces and municipalities including Beijing, Shandong, Guangdong, Chongqing, and Shandong, there were 797 cases of cerebral palsy, with a prevalence rate of 2.46%. Among these regions, Qinghai Province had the highest prevalence rate, reaching 5.40% [2]. Pediatric cerebral palsy is a complex and variable condition with numerous comorbidities and a chronic and relapsing course, posing significant burdens on families and society. Traditional Chinese medicine offers advantages such as comprehensive regulation, minimal side effects, and stable long-term efficacy, making it easily acceptable to patients and their families. According to traditional Chinese medical theory, "the spleen governs the limbs and muscles." The spleen nourishes the limbs and muscles through its function of transforming and transporting food essences, thereby maintaining their growth and development. Therefore, exploring the treatment of pediatric cerebral palsy from the perspective of regulating the spleen holds significant value.

2. The Etiology of Spasmodic Cerebral Palsy in Children

From the perspective of modern medicine, its etiology [3] main causes can be categorized as follows: ① Genetic factors: The prevalence rate is higher in families with consanguineous marriages compared to those without, and there is a certain degree of familial clustering [4]. ② Perinatal factors such as premature birth [5], intrauterine distress, and umbilical cord around the neck can lead to fetal asphyxia, which further results in cerebral palsy. ③ Congenital malformations can also contribute to the development of cerebral palsy. ④ Perinatal and intrauterine infections can also be a factor. ⑤ Other factors include recurrent pregnancy, multiple pregnancies, and bilirubin encephalopathy, which can all increase the risk of cerebral palsy [6], environmental factor [7]. In the understanding of Traditional Chinese Medicine (TCM), the causes of cerebral palsy in children are classified into two categories based on their respective characteristics: congenital and acquired factors.

Firstly, regarding congenital factors, the "Medical Golden Mirror: Key Points of Pediatrics" states, "The syndrome of five delays in children is mostly due to weak qi and blood of the parents and congenital deficiency." This illustrates that one of the causes of cerebral palsy in children is the loss of qi and blood and poor physical condition of the parents. It further states, "These five conditions are all caused by insufficient inheritance, inadequate qi and blood, resulting in weak bones and tendons, and flaccid muscles." This clarifies that cerebral palsy is caused by a lack of inheritance leading to insufficient qi and blood. The "Integration of Pediatrics" also mentions, "After birth, children may have symptoms of five soft and five hard conditions, which are due to weak fetal constitution, insufficient inheritance of congenital yang qi, intolerance to cold and heat, and susceptibility to the six pathogenic factors, resulting in the manifestation of five soft conditions." This indicates that congenital deficiency is an important factor in the development of the disease. The "Essentials of Infant Care: Five Soft Conditions" states, "Five soft conditions are all caused by weakness of the five organs, which cannot nourish and reach their full potential." This explains that the disease of cerebral palsy is located in the brain and is closely related to the five organs. Among the five organs, the kidney is the "official of strength" and is responsible for storing and nourishing essence, governing bones and producing marrow. Insufficient kidney essence, the congenital foundation, can lead to the occurrence of five soft conditions.

Secondly, regarding acquired factors, the "Essentials of Infant Care" states, "Five soft conditions are all caused by weakness of the five organs." Besides the congenital factor of the kidney, the liver stores blood and governs tendons. Insufficient liver qi can lead to constriction of tendons and veins. The spleen, as the official responsible for storing food and nourishing the body, governs the muscles of the limbs. When the spleen's transportation function is impaired, it can lead to limb weakness and muscle atrophy. Additionally, some medical experts believe that dampness-phlegm

and blood stasis can also contribute to the development of this disease. Starting from a combined approach of deficiency and excess, factors such as obstruction of brain vessels, internal accumulation of dampness-phlegm, hyperactivity of liver wind, or external pathogenic toxins, combined with insufficient qi, blood, yin, and yang, form the pathogenic mechanism of cerebral palsy [8].

3. Treatment from the Perspective of the Spleen

"The Theory of Taiyin and Yangming" in the "Basic Questions of The Yellow Emperor's Classic of Internal Medicine" states, "When the spleen is diseased, it cannot transport the fluids for the stomach... The bones, tendons, and muscles all lack the qi to nourish them, thus they become dysfunctional." This provides a theoretical foundation for the spleen governing the muscles. The "Discussion of Flaccidity" in the same classic further elaborates, "The spleen governs the muscles of the body... When the spleen qi is overheated, it causes dryness and thirst in the stomach, leading to numbness in the muscles and the development of muscular flaccidity." This illustrates that if the spleen's transportation function is disrupted, resulting in obstacles in the generation and transportation of essential nutrients and qi-blood, it can lead to flaccidity and weakness in the muscles, manifesting as symptoms such as softness, stiffness, and limited movement.

In the treatment of cerebral palsy in children, clinically, there is a focus on directly or indirectly regulating the spleen function to improve acquired factors. This is further achieved through the mutual nourishment relationship between the congenital and acquired factors, ultimately aiming to treat cerebral palsy in children. It is believed that acupuncture treatment regulates the functional activities of the central nervous system and various body parts as a whole, fully mobilizing positive factors within the body to achieve the clinical goals of treatment and promoting physical development [9]. The spleen governs the ascending of pure yang qi, which is distributed throughout the body, including the limbs and joints, maintaining the movement of the body. The normal function of the spleen directly affects the muscles. In children with cerebral palsy, it is common to see symptoms such as thin and weak body, emaciated muscles, stiffness and contracture of limbs, lethargy, reluctance to speak, poor appetite, loose stools, pale tongue with thin white coating, and deep pulse. These symptoms indicate that the skin, veins, muscles, bones, and tendons are all lacking in the nourishment of qi and blood, which is related to the dysfunction of the spleen's transportation and transformation [10]. "The insufficiency of the spleen" is an essential characteristic of children and a physiological phenomenon that exists in all healthy children. At the same time, the "insufficiency of the spleen" can easily develop into spleen and stomach weakness. Therefore, for pediatric-related diseases, especially those closely related to the development process, it is essential to pay attention to strengthening and protecting the spleen and stomach functions during treatment. The spleen, located in the middle burner, serves as the hub for regulating qi movement throughout the body, sending pure yang qi to the brain to keep it clear and agile. As stated in "Lingshu ·Wu Long Jinye Bie," "When the fluids of the five grains are harmoniously combined, they penetrate into the bony cavities, nourishing the brain marrow." If the spleen fails to function properly, the brain marrow cannot "govern the mind," leading to flaccidity and deformation of the bones. Children with cerebral palsy may experience cognitive delays, instability when sitting alone, difficulty standing independently, and various motor impairments in their limbs. Only when the spleen's transportation function is normal can the essence of the five grains transform into qi and blood, nourishing the bones and brain marrow, enabling the brain to function properly.

In terms of treatment, ancient medical practitioners often focused on treating the spleen. For example, the "Youyou Jicheng" states, "The emphasis should be placed on the stomach, as it is the

source of nourishment for the five organs and six bowels. It is advisable to tonify the middle and lift the spleen qi. If the spleen and stomach are strengthened, the organs will be nourished, and symptoms of flaccidity will be alleviated." This underscores the suitability of tonifying the spleen qi in treating conditions of flaccidity. Similar ideas are also expressed in the "Baoying Cuoyao," which emphasizes the importance of treating the spleen and stomach and using tonifying formulas to nourish the source of qi and blood. In the "Youke Zhezong," the use of Liu Junzi Tang combined with kidney-tonifying and yang-boosting herbs such as cinnamon and processed ginger is mentioned for treating pediatric conditions of flaccidity.

In modern and contemporary treatment, some medical practitioners have used self-formulated formulas such as Bu Shen Yi Pi Tang (consisting of Dangshen, Danshen, Huaishan, Chishao, Baishao, Wujiapi, Chuanniuxi, Mugua, and Gancao) combined with scalp acupuncture and body acupuncture to treat children with cerebral palsy [11], The effect is significant. There are also studies showing that massage can be performed on specific acupoints associated with the spleen meridian [12], It can effectively improve the traditional Chinese medicine syndrome of children with spleen stomach weakness type cerebral palsy, or stimulate specific acupoints of children with spleen kidney deficiency type cerebral palsy through specific techniques, improving their circulatory metabolism [13]. In addition to tuina therapy, acupuncture is also a major approach used by modern medical practitioners for treating pediatric cerebral palsy. For example, the compatibility of the five-shu acupoints, based on the principles of soothing the liver and strengthening the spleen, has been adopted in the inhibitory wood-supportive soil method for treating pediatric cerebral palsy [14], with proven effectiveness. In clinical research, a clinical trial lasting 24 weeks has been conducted using the Jianpi Yizhi acupuncture method (involving acupuncture at Sanyinjiao, Zhongwan, Pishu, Weishu, Guanyuan, Zusanli bilaterally, Baihui, Dazhui, Sishencong, Xuanzhong bilaterally, and Hegu bilaterally). This method has been shown to improve cognitive function, speech function, motor function, self-care skills, and social adaptability to varying degrees in children with cerebral palsy, with particularly notable improvements in motor function and self-care actions [15].

Moxibustion, as one of the traditional medical treatment methods, has the advantages of warming and unblocking meridians, regulating yin and yang, being safe and stable, simple and economical. It generally does not require specific equipment or conditions, making it highly convenient in practical applications and more easily accepted by patients and their families. Based on dialectical classification, medical practitioners grind corresponding traditional Chinese medicinal herbs into powder and place them on acupuncture points such as Pishu, Mingmen, and Zusanli for moxibustion treatment with moxa sticks. Combined with acupoint injection, the comprehensive treatment results showed an effectiveness rate of 92.11% in 76 cases of children with cerebral palsy [16].

The spleen is the foundation of postnatal life, and the pathology of pediatric cerebral palsy is often due to congenital deficiencies and postnatal malnutrition. By regulating the spleen and stomach, and nourishing the "congenital essence" that is insufficient with the "acquired essence" of the spleen, treatment can effectively target the root cause of the disease and improve the cure rate.

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