

Different famous Chinese medicine doctors treat children with hydrocephalus

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Abstract: Hydrocephalus in children is a disease that will affect the intelligence, language, movement and quality of life of infants and young children, and brings a huge burden to the society and family. Chinese medicine has formed a series of theoretical understanding of this disease, and has summarized rich experience in the treatment of traditional Chinese medicine in the aspects of internal administration, external use, acupuncture and moxibustion, etc., and formed an effective diagnosis and treatment plan and clinical guidelines for this disease. This article summarizes the experience of domestic famous doctors in the diagnosis and treatment of hydrocephalus in children.

1. Introduction

Hydrocephalus in children is a common brain disease. According to the definition of the Chinese Journal of Traditional Chinese Medicine in 2020 [1], it refers to the excessive secretion of cerebrospinal fluid in the ventricle or subarachnoid space of children, or abnormal accumulation of cerebrospinal fluid due to circulatory and absorption disorders, and the content increases, causing part or all of the ventricles The system is abnormally enlarged, forming a disease with enlarged head, increased intracranial pressure, brain tissue compression, and brain dysfunction as the main clinical features. In a broad sense, hydrocephalus includes many diseases, such as: subdural effusion, subdural hematoma, subarachnoid effusion and so on.

There was no corresponding name in ancient Chinese medicine for hydrocephalus in children. However, its etiology and clinical symptoms and other aspects are very similar to the "Craniolysis" and "Fontanelle filling" in traditional Chinese medicine, so a part of hydrocephalus in children belongs to its category. Craniolysis refers to a disease characterized by insufficient congenital endowment, brain damage, or flaming toxic heat, stagnation of water dampness, and stagnation of the brain and collaterals, leading to the unraveling of cranial sutures and enlargement of fontanelles. In normal children about 6 months after birth, the cranial sutures are gradually closed, the anterior cranial sutures are closed between 12 to 18 months, and the posterior cranial sutures are closed between 2 to 4 months. If they are not closed or closed within the above time those who are incomplete

are called Craniolysis. Fontanal filling means that the fontanelle is enlarged like a filling. It is similar to intracranial hypertension in children. Therefore, cerebellar hydrocephalus is often accompanied by the symptom of increased intracranial pressure, which is mostly due to cohesion of evil heat and upsurge of fire poison. In the brain; or due to children's congenital physique deficiency and cold, spleen and kidney yang deficiency, and yin and cold internal symptoms, clinically may be accompanied by aversion to cold and fever, shortness of breath, thinning of hair and other symptoms. Currently, pediatric hydrocephalus has a high incidence in China [2], with the incidence of congenital hydrocephalus alone reaching 11.84 per 10,000. In recent years, the incidence is also increasing year by year, but there is still no satisfactory effective treatment. With the understanding of the etiology and pathogenesis of children with hydrocephalus in the Chinese medicine, a large amount of clinical experience has been accumulated. Now we will summarize and discuss the diagnosis and treatment experience of well-known domestic doctors in children with hydrocephalus.

2. Professor Liu Bichen's treatment of hydrocephalus in children

Prof. Liu Bichen is good at treating children with hydrocephalus with the method of "breathing wind, dredging collaterals and diuresis". Professor Liu [3] believes that water is the most yin thing, which settles in nature and flows from a high place to a low place. The head is the meeting of all suns, the palace of Qingyang, which is located at the highest point of the human body. In the "Huangdi Nei Jing", it is recorded that "the wind is good, and the number changes." The wind is good, and only the wind can reach the top, and the wind is the yang evil, which is easy to attack the sun. Therefore, the etiology of hydrocephalus is closely related to wind pathogens. Children show irritability and mental retardation over time. In severe cases, limb twitching, reflexed horns, hanging eyes and other symptoms may occur. He often uses Shengjiangsan as the basic prescription, adding Uncaria, Stiff silkworm, antelope horn powder and other anti-wind products to treat this disease, which is beneficial to promote qi and promote Yang, dredge collaterals and reduce precipitation, and has achieved very good clinical effects.

3. Professor Wang Jingan's treatment of hydrocephalus in children

Professor Wang Jingan has rich experience in treating cranial resection, He believes that [4] cranial relieving is a syndrome of insufficiency and excess, mostly due to the lack of congenital kidney qi, which leads to the overflow of kidney water, tangible evil rushes to the brain, the child's own qi machine rises and falls in disorder, the clear qi does not rise, and the turbid qi does not become crimson. Form the image of upper real and lower virtual. "Theory of Various Pathogens- Resolving Skull Syndrome" contains: "The kidney qi does not cause the cause, the kidney controls the bone marrow, and the brain is the marrow sea. If the kidney qi is insufficient, the medulla brain is insufficient and cannot be formed, so the head can be opened.", Therefore, the solution to the skull is mostly based on kidney deficiency. However, Professor Wang believes that it should not be limited to the aspect of tonifying the kidney. It should be combined with the ups and downs of the Qi machine, and the method of raising the clearing and reducing the turbidity, replenishing the deficiency and reducing the solid state should be adopted to make the Qi machine and meridian run smoothly. The loose skin powder with the functions of dispelling wind, dredging collaterals, promoting qi and activating blood for external application, combined with internal and external treatment,

supplemented the shortcomings of the predecessors who only used tonic methods, and improved the curative effect on the original basis.

4. Professor Zhang Xuewen on the treatment of children with hydrocephalus

Professor Zhang Xuewen also has unique insights on the treatment of children with hydrocephalus. He believes that [5] craniocerebral water stasis and cerebral collateral congestion are the key to the pathogenesis of this disease. Due to congenital deficiency, deficiency of kidney qi and insufficient qi and blood, the circulation of qi and blood is not smooth, blood stasis is blocked in the brain network, and because of kidney deficiency, water turbidity rises, water evil and blood stasis in the brain are intertwined with each other, oppressing the brain orifice. "Golden Chamber Synopsis" states that "blood is unfavorable, blood is water", so the "craniocerebral water stasis syndrome" is formed, and there are clinical symptoms such as head enlargement, upward vision, fatigue, lethargy, mental retardation, and quadriplegia. In terms of treatment, he referred to the treatment experience of the ancients and believed that he should remove blood stasis and diuresis, remove pathogens and relieve orifices, and then use the method of nourishing qi and nourishing the kidney after the water stasis in the brain has disappeared. Professor Zhang added products for activating blood and water in Wang Qingren's prescription for promoting blood circulation, such as *Chuan Achyranthes bidentata*, *Imperata cylindrica* root, etc., and later added eucommia, astragalus, mulberry and other kidney qi tonic products, and achieved satisfactory clinical effects.

5. Professor Huang Mingzhi on the treatment of children with hydrocephalus

Based on ancient physicians' knowledge of the disease since ancient times and combined with years of clinical experience, Professor Huang Mingzhi believes that [6] the three main pathological factors of hydrocephalus in children are "deficiency, wind, and blood stasis". "Deficiency" is mainly due to insufficient congenital endowment, or loss of nourishment due to acquired conditioning and maintenance, which makes the spleen and kidney insufficiency; "Wind" is due to the top of the summit, only wind can reach; "Stasis" refers to the blockage of phlegm and blood stasis, which blocks waterways and retains them in the brain. Therefore, Professor Huang added the method of dispelling wind and activating blood stasis to the predecessor's method of nourishing the kidney and marrow, and added the medicine to dilute water, soak dampness, and dredge the collaterals to create the "Naoshui Elimination Formula". This prescription makes good use of tortoise shell, nourishes yin and suppresses yang, nourishes the kidney and strengthens the bone, and is the first medicine for the treatment of Craniolysis; Maqianzi disperses knots, relieves swelling, clears the brain and collaterals, stimulates the cerebral cortex; Pangolin can invigorate blood and remove blood stasis; Centipede and Earth Dragon Tongluo relieve pain, and have the effect of channeling meridians; White aconite expelling wind and phlegm, reaching the top of the head. In general, this prescription has a strong effect of activating blood, removing blood stasis, dispelling wind and dredging collaterals, and can remove long-stasis blood and dredge long-stagnant meridians.

6. Professor Huang Shaohua on the treatment of children with hydrocephalus

Professor Huang Shaohua believes that [7] the pathogenesis of the disease is spleen deficiency and

loss of luck, and on the basis of strengthening the spleen and diuresis, he also added medicines for promoting blood circulation and replenishing qi. He chose Jijiao Lihuang Pills and Wuling Powder as the main prescriptions, and added Taizishen and Huangqi to invigorate qi and benefit the spleen, diuresis and reduce swelling; Danshen promotes blood circulation and removes blood stasis. Pharmacological studies have shown that Jiaomu, Fangji, Poria, Zhuling, Alisma, Rhubarb, Astragalus, Tinglizi all have diuretic effects. Professor Huang used the combined effects of these drugs to excrete water from urine, Danshen was also used to expand blood vessels, Fangji and Alisma reduce blood pressure, reduce the intracranial pressure of the child, and circulate the cerebrospinal fluid smoothly. However, this method is suitable for younger children, preferably between half a year old and one and a half years old. It is more difficult to treat if the patient has been sick for too long and the child has clinical manifestations such as five late and five soft.

7. Professor Wang Songling's Discussion on Treatment of Infantile Hydrocephalus

Professor Wang Songling believes that [8] the etiology and pathogenesis of hydrocephalus in children are: insufficient spleen and kidney, yang deficiency and water stasis. Among them, Yang deficiency and water stasis are the standard, spleen and kidney deficiency is the root, and the specimens influence each other. In "Yibian", it is stated that "the lower part is the kidney, the upper part is the brain, and the deficiency is all deficiencies". Insufficient yang in the kidney can cause the Du Channel to be blocked. The Du Channel is called "the sea of yang veins". The Du Channel is blocked, and the water in the brain cannot be warmed to descend, thus forming hydrocephalus. Professor Wang pointed out that the symptoms should be treated at the same time, because the lack of congenital kidney qi and acquired spleen qi will lead to yang deficiency and water stasis, Yang deficiency and water stasis can block the nourishment of the spleen and kidney. Professor Wang also advocated that spleen supplementation should be implemented consistently, because children are congenital insufficiency and insufficient kidney qi, which is difficult to supplement in a short time. Therefore, attention should be paid to supplementing the spleen. In short, he advocated harmony as the treatment criterion, using the methods of invigorating the spleen and kidney, warming the kidney and eliminating blood stasis to treat this disease. This is similar to Professor Huang Shaohua's treatment of this disease, but he does not advocate diuresis, because the "Golden Chamber Synopsis" mentioned that "sick phlegm drinkers should be treated with warm medicine." In addition, Professor Wang paid attention to the combined use of decoctions and pills in his treatment. When the condition was slightly relieved, he used pills to consolidate, following the traditional Chinese medicine thinking of preventing diseases before they occur.

8. Professor Song Hujie's Treatise on Hydrocephalus in Children

Professor Song Hujie, as the inheritor of the third generation of Xiqi Wang's Jishitang TCM Pediatrics Academic School, He combined [9] the clinical experience and academic thoughts of Professor Wang Xiuchun and Professor Zhang Wenhuan in the treatment of children with hydrocephalus. In the treatment, Professor Wang advocated promoting blood circulation and removing blood stasis, inducing resuscitation and diuresis. He believes that the method of "tong" should be adopted for this disease. It has excellent curative effect in treating children hydrocephalus. Professor Zhang believes that the main cause of the disease is the stagnation of heat and toxins. "Self-

swollen patients start from brain swelling. One of the ten people who have swelling due to blockage and nine out of ten people have swelling due to heat." It is also mentioned in "Children's Integration". He found that it was due to the poison of fiery attacking the brain orifices, mostly because of heat evil, which caused the children to have symptoms such as head enlargement, limb spasm, and strabismus. So he advocated [10] the principles of heat-clearing and detoxifying, cooling blood and dredging collaterals, and chose "Xidi Qingluo Decoction and Huadu Pill" as the treatment prescription, which also has good clinical effects. Professor Song created the "Tri-in-One Therapy for Hydrocephalus" on the basis of two physicians, which specifically refers to the principle of "removing blood stasis, opening the brain, clearing the meridians, and removing stagnant water" as the treatment principle, and used internal and external application. Plus 3 kinds of treatment methods for rehabilitation. Allow patients to take Naokangling series internally to eliminate blood stasis in the brain, nourish the kidneys and fill the marrow; apply Naokangling ointment externally to promote blood circulation, remove blood stasis, and relieve brain and resuscitation; At the same time, with acupuncture, massage and other rehabilitation therapies, it can dredge the meridians, activate blood and remove blood stasis, and achieve better clinical effects.

9. Other professors discuss the treatment of hydrocephalus in children

Rong Junsheng mainly uses [11] hydrocephalus pills, which can be added or subtracted according to the symptoms, to invigorate the kidney, fill the marrow, invigorate the spleen, promote blood circulation and remove blood stasis. Guo Jinzhang and Yang Wenyi explored Guo Jinzhang's proven prescriptions [12] from the clinic, treating both the symptoms and the root causes, and both replenishing and reducing. Bian Yujie and others [13] used Tongluo Shengzhi Decoction to increase cerebral blood flow and improve cerebral circulation. It is suitable for hydrocephalus with normal pressure (intracranial pressure less than 180mmHg). On the basis of the "Tongqiao Huoxue Decoction" in Wang Qingren's "Medical Forest Correction", Cao Zhengzhong [14] created the "Tongqiao Huayu Lishui Decoction". The effect of this prescription is to clear the collaterals, remove blood stasis and diuresis, and nourish the liver and kidney, The specific use is divided into three different periods for addition and subtraction. Hou Shiliang and others found that [15] the folk prescriptions have been verified by long-term clinical practice and developed Naojisan No. 1 for external use, combined with Naojisan No. 2 for internal use, which has good curative effect in treating obstructive and traffic hydrocephalus. Zhang Zongming and others [16] in the treatment of children with hydrocephalus, believe that the principle of treatment should be to warm the spleen and kidney to remove drinking and blood stasis, self-made Xiaoji Lishui powder, and add qi and blood circulation drugs, such as: fish occipital bone, turmeric, stamen, cassia, etc. Fan Jie mainly used [17] snake preparations Dilong and Baihuashe in the treatment of hydrocephalus in infants and children, named Longshe Decoction. These two medicines are used in combination, and have the functions of hydrolyzing toxins, relieving heat, relieving shock, and removing blood stasis and collaterals. Effectively, it can open the circulation of cerebrospinal fluid and accelerate the absorption of hydrocephalus. Fan Xiaoxuan and others [18] summed up the empirical formula Peiyuan Huayu Recipe based on the experience of the predecessors, and found that this formula has a certain therapeutic effect on children with hydrocephalus. It can reduce the resistance of cerebral blood flow, increase the blood supply to the brain, and reduce the effect of hydrocephalus on the brain. It has the

effects of invigorating the kidney and cultivating vitality, removing blood stasis, dredging collaterals and improving intelligence.

In summary, pediatric hydrocephalus is a refractory disease, and various physicians have different opinions on it, and have their own characteristics in treatment, and they have achieved good clinical effects. At the same time, the motherland medicine has a great advantage in the treatment of children with hydrocephalus. The advantages of these traditional therapies should be fully utilized to further strengthen the research of traditional Chinese medicine on this disease to achieve better clinical effects.

References

- [1] Zhao Liang, Liu Yutang, Song Hujie, Yan Bingcang, Du Xiaogang, Jia Jianzhen, Wei Shiliang. Guidelines for clinical diagnosis and treatment of pediatrics in traditional Chinese medicine: Granial disease (pediatric hydrocephalus) [J]. Chinese Journal of Traditional Chinese Medicine, 2020, 35(12): 6215- 6219.
- [2] Song Hujie, Zhang Yulian. Current situation and analysis of TCM treatment of hydrocephalus [J]. Journal of Traditional Chinese Medicine, 1998(07): 438-440.
- [3] Xu Rongqian. Treatment of 32 Cases of Infantile Hydrocephalus by Xifeng Tongluo Method[J].Journal of Beijing university of TCM, 1995(01): 26-27.
- [4] Wang Jing'an. Clinical experience in the treatment of "hydrocephalus" in pediatrics of traditional Chinese medicine[J].Chengdu Medical News, 1977(01): 13-17.
- [5] Hua Rong, Sun Jingbo. Professor Zhang Xuewen's experience in treating children with hydrocephalus [J]. Shaanxi Journal of Traditional Chinese Medicine, 1991(08): 337-339.
- [6] Clinical experience of Professor Huang Mingzhi in treating hydrocephalus in children [J]. Chinese Medicine Modern Distance Education of China, 2009, 7(01): 47-48.
- [7] Jia YB. Huang Shaohua's experience in the treatment of hydrocephalus -- analysis of 21 cases [J]. Yunnan Journal of Traditional Chinese Medicine, 1991(04): 18-19.
- [8] Liu Fugui, Peng Chaoqun, Liu Ling, Wang Songling. Professor Wang Songling's experience in treating children with hydrocephalus by strengthening the spleen, nourishing the kidney, warming yang and eliminating blood stasis [J]. Journal of Tianjin University of Traditional Chinese Medicine, 2020, 39(05): 493-496.
- [9] Feng Taozhen, Song Hujie, Sun Yubo, Yuan Yan. Xiqi Wangshi academic genres treatment of infantile Hydrocephalus [J]. Jilin Journal of Traditional Chinese Medicine, 2016, 36(08): 771-773.
- [10] Ruan Guiji, Song Hujie, Yan Bingcang, Feng Taozhen, Sun Yubo, Yuan Yan. Sixty cases of children with hydrocephalus treated by "Trinity Therapy" [J]. Lishizhen Medicine and materia medica research, 2016, 27(09): 2181-2184.
- [11] Rong Junsheng, Zhang Guoshan. 10 Cases of Infantile Hydrocephalus Treated with Chinese Medicine[J].Journal of Integrated Traditional Chinese and Western Medicine, 1985(12): 751-752.
- [12] Guo Jinzhang, Yang Wenyi. Treatment of infant hydrocephalus [J]. Jiangsu Journal of Traditional Chinese Medicine, 1986(05): 5.
- [13] Bian Yujie, Yin Xilian. Tongluo Shengzhi Decoction in the treatment of 32 cases of normal pressure hydrocephalus [J]. Henan Journal of Practical Nervous Diseases Jul 2004.vol.7 No.4.
- [14] Cao Zhengzhong. Tongqiao Huayu Lishui Decoction for Hydrocephalus [J]. Shanghai Journal of Traditional Chinese Medicine, 1982(07): 23.
- [15] Hou Shiliang, Cui Ying, Yang Guoying, Zhang Bin. A summary of the efficacy of Naojisan in treating 524 cases of hydrocephalus [A]. China Association of Chinese Medicine. 2009 National Grassroots Excellent Traditional Chinese Medicine Commendation Conference and the second in the country Proceedings of the second folk prescription, diagnosis and treatment technology seminar conference [C]. China Association of Chinese Medicine:World Journal of Integrated Traditional and Western Medicine 2009.supple
- [16] Zhang ZM, Zhang J. Analysis of clinical syndrome differentiation and treatment of hydrocephalus in children [J].Journal of Shaanxi College of Traditional Chinese Medicine,Vol.26.No.6.2003.11
- [17] Fan Jie, Fu Ping, Wan Jinyi. Clinical Journal of Traditional Chinese Medicine,2005(04):393-394. (in Chinese)
- [18] Fan Xiaoxuan, Zhao Xiaoping, Zhang Yi, Fang Yongjun, Duan Haifeng. Effect of Peiyuan Huayu Recipe on cerebral blood flow resistance in children with hydrocephalus [J]. Acta Chinese Medicine and Pharmacology, Vol.43.No.5, Oct.2015