

Discussion on diagnosis and treatment of Stroke-associated pneumonia based on phlegm and Blood stasis Theory

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ABSTRACT. Stroke-associated pneumonia ((SAP)) is one of the most important complications in patients with acute stroke. Stroke belongs to the scope of "stroke" in Chinese medicine, and stroke-associated pneumonia belongs to the combination of "stroke" and "cough" and "asthma syndrome". There is no completely opposite name of Chinese medicine in Chinese medicine, but there is no lack of relevant treatment based on dialectical treatment. Chinese medicine believes that phlegm and blood stasis is closely related to stroke, so based on the theory of phlegm and blood stasis to explore the law of diagnosis and treatment of stroke-associated pneumonia, to provide new ideas for the treatment of stroke-associated pneumonia.

KEYWORDS: Stroke associated pneumonia, Phlegm and blood stasis theory, Phlegm, Stasis

1. Introduction

The consensus on stroke-associated pneumonia (SAP) [1] is the infective lung parenchyma (including alveolar wall, which is the pulmonary interstitium in the broad sense) in the acute phase of stroke patients without lung infection.) Inflammation. The brain is the home of the primordial spirit. After a stroke, the function of the nerves is ineffective, and the lung failure is suppressed. Therefore, the etiology and pathogenesis should be linked to the stroke. The treatment of traditional Chinese medicine is mainly based on "asthmatic syndrome" and "cough" and "stroke" "And so on for dialectical treatment. The current anti-infective treatment is the main treatment method, but bacterial resistance and other issues are still difficult problems that plague the treatment effect of stroke-related pneumonia [2]. Phlegm and blood stasis is an important pathological factor in the course of stroke. From the perspective of phlegm and blood stasis to analyze the rules of

syndrome and treatment of stroke and stroke-related pneumonia, it can provide new ideas for the treatment of stroke-related pneumonia.

2. TCM understanding of phlegm and stasis

2.1 The concept of phlegm and blood stasis

Phlegm and blood stasis are pathogenic factors and pathological products. Phlegm is abnormal movement of body fluid and stops gathering in the body. Phlegm is divided into tangible and intangible. The tangible phlegm is mostly concentrated in the lungs, and the invisible phlegm is scattered around the body [3]; blood stasis refers to blood stasis, which is damage to the blood supply, poor blood flow or stagnation. Although the concept and connotation of the two are different, the clinical manifestations of the two are mutually transformed and closely related [4]. Phlegm and blood stasis are both Yin evil, thick and thick in texture, easy to stick and fight, which are caused by visceral qi disorders and body fluid metabolism disorders. Pathological product. In recent years, many physicians advocate the simultaneous treatment of phlegm and blood stasis [5-6], combining phlegm and blood stasis to treat various diseases, especially when treating stroke, epilepsy and other encephalopathy.

2.2 Phlegm and blood stasis are of the same origin and syndrome

The main content of the theory of phlegm and blood stasis is that phlegm and blood stasis have the same origin and the same syndrome is the same. The "Huangdi Nei Jing" believes that all body fluids are metabolized by the essence of water and valleys, and that body fluids stop accumulating to resolve phlegm, and blood stagnation becomes blood stasis, and that phlegm and blood stasis are related to the unfavorable Qi machine. It can be seen that phlegm and blood stasis are closely related in physiology and pathology; Danxi went further in theory for the first time, discussing the theory of the same syndrome of phlegm and blood stasis, thinking that "phlegm carries blood stasis, and then becomes a nest." According to Qi, blood and body fluid The metaplasia of phlegm, when the phlegm and drink stagnation for a long time, it will definitely affect the body fluid and cause blood stasis; after the blood stasis is formed, it will affect the water metabolism, and the water will stop gathering and produce phlegm, or aggravate the phlegm and drink [7], finally Causes phlegm and blood stasis to accumulate, and phlegm and blood stasis have the same syndrome; Deng Tietao [8] believes that "phlegm is in qi, blood stasis is blood, phlegm is the lead, and blood stasis is the back knot", which further clarifies the relationship between phlegm and blood stasis in pathological metaplasia relationship. Based on the dialectical treatment of phlegm and blood stasis and phlegm and blood stasis with the same syndrome, Wang Jiansheng [9] analyzed from ancient and modern prescriptions and theoretical aspects, he believed that phlegm and blood stasis have an objective internal relationship, and both phlegm and blood stasis are eliminated, and blood stasis is not forgotten. sputum. In summary, the same

syndrome and treatment of phlegm and blood stasis have both theoretical basis and clinical practice value. Traditional Chinese medicine also recognizes that phlegm and blood stasis is not only an important factor in the onset of stroke, but also a basic pathological factor that runs through all stages of stroke [10-11]. Therefore, stroke and stroke-related pneumonia are treated from the theory of phlegm and blood stasis, and preventive measures are based on this. Treatment is of great significance.

3. Phlegm and blood stasis and stroke-related pneumonia

3.1 TCM's understanding of stroke-related pneumonia

TCM disease "stroke" is closely related to stroke, and stroke-associated pneumonia is closely related to the symptoms of TCM "stroke", "cough" and "asthmatic syndrome". Cough, sputum, wheezing, fever and other symptoms are the main symptoms, so explore In addition to considering the pulmonary symptoms, the TCM syndrome pattern of stroke-related pneumonia must also be closely related to the pathogenesis and pathological basis of stroke. Phlegm and blood stasis are closely related to stroke. Ma Zhaohui[12] believes that body fluid and blood play a prominent role in stroke according to the study of cerebral ischemic penumbra, while Yang Xiaoyan[13] believes that it is in the distribution of syndrome types during stroke recovery and sequelae. Phlegm and blood stasis are the most frequently occurring syndrome. Stroke-related pneumonia is one of the most important complications after stroke. Although the external symptoms are different, the intrinsic pathogenesis is consistent with stroke. Although wind, fire, phlegm and blood stasis are the main cause, it According to this, many doctors have different opinions on the pathogenesis. Jiang Xiuyun [14] believes that phlegm-heat is the main pathogenic factor in SAP patients. Chen Fujun[15] believes that the main pathogenesis of SAP is visceral qi disorder, liver failure, phlegm heat, and lung failure; Xiao Wei[16] believes that although there are differences between deficiency and excess, phlegm and blood stasis are the main pathological factors and pathology. The product, which runs through the entire course of stroke-related pneumonia, is the fundamental pathological essence; Zhong Yuan[17] analyzed from the tongue diagnosis and also believed that phlegm, heat and blood stasis are important pathological factors and syndromes of stroke-related pneumonia; Song Ping[18] According to the research on TCM characteristics and syndromes of stroke-related pneumonia, it is believed that phlegm-heat is the most important basic syndrome type, and blood stasis runs through it; Zhang Jingbo[19] believes that phlegm-dampness is the most important pathological factor and blood stasis for stroke-related pneumonia It is an important syndrome element. Although the opinions of each family are different, they all believe that phlegm and blood stasis are important pathological factors in the onset of stroke-related pneumonia. From the perspective of symptoms, stroke-related pneumonia mainly manifests as cough, sputum, wheezing, etc. Based on this, Li Guoliang [20] believes that in terms of the correlation between phlegm and blood stasis and cough, most elderly patients with

special physical factors are present. It is consistent with Sun Maojun [21]'s conclusion that elderly stroke patients are prone to stroke-related pneumonia. To sum up, phlegm and blood stasis have varying degrees of performance in each course of stroke and stroke-related pneumonia, and phlegm and blood stasis is the initial pathogenic factor of stroke-related pneumonia and the pathological product. Pay attention to the effect of phlegm and blood stasis in the entire course of the disease. Important role, on the basis of dialectical treatment, preventive and relevant clinical treatment of stroke-related pneumonia from the perspective of phlegm and blood stasis is the key to TCM treatment of stroke-related pneumonia.

3.2 Modern research on phlegm stasis and stroke-related pneumonia

Stroke-associated pneumonia (SAP) refers to a type of disease associated with lung infection after stroke [22]. SAP is not a new type of disease, but SAP is closely related to the pathological changes of the body after stroke. SAP has its own relatively unique clinical rules. The main cause is immunosuppression and dysphagia induced by stroke [22]; the correlation study of SAP [23] believes that the brain's regulation of immune function is lost after stroke and the body's immune function is reduced. , Prone to infection. Among them, the levels of factors such as procalcitonin (PCT), C-reactive protein (CRP) and CPIS are significantly higher than those without infection. PCT is the most sensitive in predicting SAP. According to the PCT value, it can guide clinical prevention and treatment Results. Phlegm and blood stasis are closely related to inflammatory factors and autoimmune factors. Wang Yunsu [24] believes that phlegm and blood stasis syndrome is highly correlated with CPR, TNF-F- α , and D-dimer, while Gu Wenliang [25] through clinical observations It was found that the values of CPR and procalcitonin in patients with phlegm stasis obstructing lung type AECOPD increased while more complicated with cardiovascular and cerebrovascular diseases, and the correlation between phlegm and stasis factors and various immune factors and inflammatory factors in stroke-related pneumonia Less research. However, there are many related studies in vascular diseases, which are of reference significance. Dysphagia is another important factor leading to SAP, which is mainly caused by brain damage after stroke, which is also related to the physical fitness of elderly stroke patients. After studying the distribution characteristics of dysphagia after stroke and TCM syndromes[26], It is considered that the syndrome of phlegm and blood stasis is a common syndrome type of swallowing disorder after stroke. From the perspective of modern research, it is feasible to take the high correlation between phlegm and blood stasis and inflammatory factors and immune factors as the main proof that phlegm and blood stasis is the pathological basis of stroke-related pneumonia, and it is also feasible for the application of TCM method of removing phlegm and blood stasis in stroke-related pneumonia Provided evidence in the treatment.

4. Treat stroke-related pneumonia from phlegm and blood stasis

Phlegm and blood stasis are important pathogenic factors and pathological products that permeate stroke and stroke-related pneumonia. As the disease progresses, phlegm and blood stasis will become knotted, and Conghua or combined with other syndromes often appear under the influence of internal and external factors, such as post-stroke phlegm Blood stasis mutual knot, arthralgia obstructs the meridian, limb paralysis, congestion in the lung, then block the Qi machine, the lung's function of promulgating and purging the air will be affected. As time goes on, it will also have Qi deficiency; phlegm and blood stasis can also reduce fire over time. Phlegm-heat occurs; while phlegm-heat is prolonged, the body fluid is consumed, the lungs and kidneys are involved, and the yin deficiency becomes heavier. As the disease progresses, there are more syndromes of qi deficiency and yin deficiency combined with phlegm stasis. Traditional Chinese medicine emphasizes dialectical treatment and uses prescriptions based on syndromes. However, both in terms of the basic pathogenesis and pathogenic factors of stroke-related pneumonia, it is necessary to pay more attention to phlegm and blood stasis. As a basic therapy, it can not only promote the recovery of speech and swallowing function after stroke and improve the patient's systemic symptoms, but also preventive treatment of SAP through the treatment of phlegm and blood circulation in order to reduce the infection rate and mortality. Zhang Shougang [27] believes that removing phlegm and removing blood stasis is effective in treating lung infections in elderly patients. Clinically, traditional Chinese medicines for activating blood and removing blood stasis and removing phlegm have always been commonly used drugs for stroke-related diseases, and according to modern pharmacological studies of Chinese medicine, activating blood and removing blood stasis drugs have the effects of improving microcirculation, anti-inflammatory and immune [28], such as Xuebijing [29-31], which currently has obvious clinical value in the treatment of stroke-related pneumonia, is mainly composed of ligusticum chuanxiong, red peony root, angelica, safflower and other traditional Chinese medicines for promoting blood circulation; In addition to anti-inflammatory and inhibiting inflammatory factors, they have common effects with activating blood and removing blood stasis drugs. Some phlegm-reducing drugs have also been considered to have the effects of expanding blood vessels, reducing plasma fibrinogen and inhibiting platelet aggregation in research [32], suggesting Resolving phlegm can remove blood stasis, which is also a supplement to the theory of traditional Chinese medicine, such as removing blood stasis and removing phlegm, and removing phlegm can remove blood stasis. As Tanreqing injection mainly composed of phlegm-resolving Chinese medicines, it is used in the clinical treatment of stroke-related pneumonia. In terms of efficacy observation, its effective rate is also worthy of recognition [32-35]. Resolving phlegm can remove blood stasis, and removing blood stasis is helpful for removing phlegm. He Miao et al. believes that removing blood stasis and removing phlegm and strengthening the body can make phlegm go away, blood flow smoothly, and qi can be restored. It is not only helpful for stroke recovery, but also for the lung after stroke. Partial infection has a preventive effect [36]. In clinical treatment, the prescription of medicine must be paid attention to phlegm and blood stasis, and at

the same time, it is necessary to distinguish whether phlegm is heavier than blood stasis or blood stasis is heavier than phlegm according to the patient's symptoms, and whether there are other concurrent symptoms and dialectical medication. Taking the factors of phlegm and blood stasis as the basic pathological factors and stroke conditions, it is feasible to carry out preventive TCM treatment.

5. Conclusion

The location and pathological manifestations of stroke-related pneumonia are mainly found in the lungs, but are also affected by the pathological changes of the whole body after stroke, and are closely related to the physiology and pathology of stroke. Phlegm and blood stasis are the main pathogenic factors and pathological products. Tongzhi, in the study of the correlation between phlegm and blood stasis and the initial pathogenic factors and pathological basis of stroke and stroke-related pneumonia, it can be found that phlegm and blood stasis are the main common pathological factors. On the basis of TCM dialectical treatment, it is very important to analyze the treatment of stroke-related pneumonia from the perspective of phlegm and blood stasis, and to prevent stroke-related pneumonia through the method of removing phlegm and blood stasis. It is hoped that through exploring the possibility of treating stroke-related pneumonia from the perspective of phlegm and blood stasis in traditional Chinese medicine, it can provide new ideas for the prevention and treatment of stroke-related pneumonia.

References

- [1] Chinese Expert Consensus Group on Diagnosis and Treatment of Stroke-related Pneumonia. Chinese expert consensus on diagnosis and treatment of stroke-related pneumonia [J]. Chinese Journal of Internal Medicine, 2010, 49 (12): 1075-1078.
- [2] Zhao Lina, Lei Xianying, Gao Xiaolan, Lu Changbi, Ai Zhongping. The etiological characteristics and influencing factors of multidrug resistant bacteria infection in patients with stroke-associated pneumonia in ICU [J]. Chinese Journal of Nosocomial Infection, 2020, 30 (01): 67-71.
- [3] Kao Xiliang, Zhang Wei. Differentiating the invisible phlegm of lung diseases [J]. Information on Traditional Chinese Medicine, 2013, 30 (03): 1-3.
- [4] Zuo Xurui, Xiao Zhaocen. A preliminary study on the diagnosis and treatment of cough based on "phlegm and blood stasis homology"[J]. Tianjin Traditional Chinese Medicine, 2019, 36(10): 971-972.
- [5] Jin Yuanlin, Zhou Lingyun. On "stasis" and stroke [J]. Journal of Yunnan College of Traditional Chinese Medicine, 2012, 35 (05): 34-36.
- [6] Guo Yanzhao, Song Hujie. Introduction to Song Hujie's academic thoughts on treating pediatric epilepsy [J]. New Chinese Medicine, 2017, 49 (05): 159-160.
- [7] Zheng Caixing, Li Hua, Liu Wanghua, Luo Yaoyue, Zhou Xiaoqing. Research on the similarities and differences of phlegm and blood stasis [J]. Hunan Journal of Traditional Chinese Medicine, 2020, 36 (03): 109-112.

- [8] Chen Ting, Liang Hongmei, Wu Wei, Zuo Qiang. Professor Deng Tietao, a master of traditional Chinese medicine, has the experience of replenishing qi, removing phlegm and promoting blood circulation in treating vascular dementia [J]. *Chinese Journal of Traditional Chinese Medicine*, 2016, 31 (07): 2598-2600.
- [9] Wang Jiansheng. Discussion on phlegm and blood stasis in traditional Chinese medicine and its clinical application [J]. *Chinese Clinicians*, 2014, 42(04): 88-89+92.
- [10] Wang Xiaoliang, Guo Yanlin, Hou Bin, Liu Qiang, Wang Kai. Research progress in the pathogenesis of hemorrhagic stroke and its relationship with kidney deficiency, blood stasis and phlegm obstruction [J]. *Guangming Traditional Chinese Medicine*, 2020, 35(02): 275-277.
- [11] Zhu Wenhao, Hu Hao, Liu Xianfeng, Wang Hongxia, Hu Mingzhe, Zhang Chuanfeng. Study on the distribution of ischemic stroke syndrome elements and influencing factors [J]. *Journal of Integrated Traditional Chinese and Western Medicine Cardio-Cerebrovascular Disease*, 2019, 17(23): 3690-3694.
- [12] Ma Zhaohui. Analysis of the etiology and pathogenesis of stroke based on the theory of "qi, blood and body fluid" in traditional Chinese medicine [J]. *Journal of Integrated Traditional Chinese and Western Medicine Cardio-Cerebrovascular Disease*, 2019, 17(04): 623-624.
- [13] Yang Xiaoyan, Guo Weifeng, Zhang Lankun, Xu Dan. Research progress on the distribution and evolution of meridian and viscera syndromes and related factors in stroke [J]. *Chinese Journal of Traditional Chinese Medicine*, 2012, 27 (03): 664-667.
- [14] Jiang Xiuyun, Li Dan. Clinical observation of Qingfei Huatan Decoction in the treatment of stroke-related pneumonia [J]. *Chinese Journal of Practical Nervous Diseases*, 2016, 19(24): 132-133.
- [15] Chen Fujun, Yin Yihua. Clinical study of Tanreqing injection combined with antibacterial drugs in the treatment of pulmonary infection in elderly stroke patients [J]. *Contemporary Medicine*, 2020, 26 (04): 164-165.
- [16] Li Xia, Zheng Zhijun, Xiao Wei. Professor Xiao Wei's experience in treating stroke-related pneumonia [J]. *Guangxi Traditional Chinese Medicine*, 2017, 40(01): 48-50.
- [17] Zhong Yuan, Wang Jianlong, Pei Jingbo, Cao Limin. Discussion on the characteristics of the tongue picture of stroke sequelae combined with lung infection [J]. *Journal of Liaoning University of Traditional Chinese Medicine*, 2015, 17 (01): 89-91.
- [18] Song Ping, Zhang Xi, Yao Huaiguo. TCM symptoms and syndrome characteristics of stroke-related pneumonia [J]. *The Journal of Practical Medicine*, 2018, 34 (09): 1557-1560.
- [19] Zhang Jingbo, Hu Huixing, Liang Fajun, Wang Baoguo, Wang Zhen. Research on the combination law of traditional Chinese medicine syndrome elements of stroke-related pneumonia based on literature [J]. *Clinical Journal of Traditional Chinese Medicine*, 2019, 31 (06): 1073-1076.
- [20] Li Guoliang. Using the theory of treating phlegm and blood stasis simultaneously to treat wind, warmth and lung-heat disease in the elderly—

- Clinical observation of lung-heat-retained lung syndrome [J]. *Electronic Journal of Modern Medicine and Health Research*, 2018, 2 (18): 131-132.
- [21] Sun Maojun, Chen Lindi, Kou Xuelian, Tang Weiguo, Yu Xiaolong. Risk factors and prevention of lung infection in elderly patients with acute stroke [J]. *Chinese Journal of Nosocomiology*, 2016, 26 (07): 1517-1519.
- [22] Chinese Expert Consensus on Diagnosis and Treatment of Stroke-related Pneumonia (2019 Update) [J]. *Chinese Journal of Stroke*, 2019, 14 (12): 1251-1262.
- [23] Han Fang, Zhang Xin, Zhang Weidong. Study on the relationship between PCT, CRP and CPIS and stroke-related pneumonia [J]. *Modern Journal of Integrated Traditional Chinese and Western Medicine*, 2014, 23 (35): 3886-3887+3990.
- [24] Wang Yunsu, Lin Zhonghui. Study on the correlation between phlegm and blood stasis syndrome and immune and inflammatory factors in acute coronary syndrome [J]. *Asia-Pacific Traditional Medicine*, 2017, 13 (08): 109-111.
- [25] Gu Wenliang, Niu Xiaoya. Clinical study of 200 cases of chronic obstructive pulmonary disease in acute attack stage with phlegm stasis obstructing lung syndrome [J]. *Guangming Traditional Chinese Medicine*, 2019, 34 (14): 2125-2127.
- [26] Luo Jing, Cui Shaoyang, Wang Shuhui, Xu Zhenhua. Preliminary study on the distribution characteristics of TCM syndrome types of dysphagia after stroke [J]. *Chinese Journal of Traditional Chinese Medicine*, 2019, 34 (02): 820-823.
- [27] Zhang Shougang, Zhang Yongbin, Zhang Liangmei, Wu Xiaoli. Study on the therapeutic effect of traditional Chinese medicine for removing phlegm and promoting blood circulation in elderly patients with lung infection [J]. *Clinical Research of Chinese Medicine*, 2019, 11 (24): 69-71.
- [28] Chen Yuqin, Wang Min. Application analysis of common Chinese medicines for promoting blood circulation and removing blood stasis [J]. *Chinese Medical Guide*, 2014, 12 (27): 252-253.
- [29] Wang Hao. Analysis of the clinical value of Xuebijing injection in adjuvant treatment of stroke-related pneumonia [J]. *Chinese Health Standard Management*, 2016, 7(16): 141-143.
- [30] Zhang Cuixia. Analysis of the clinical effect of Xuebijing injection in adjuvant treatment of stroke-related pneumonia [J]. *Community Medicine Journal*, 2017, 15 (11): 62-63.
- [31] Fang Xinmiao. Observation on the clinical efficacy of Xuebijing injection in adjuvant treatment of stroke-related pneumonia [J]. *China Medical Guide*, 2014, 12 (11): 267-268.
- [32] Jiang Wenyue, Yang Yu, Li Yanyan. The effect of phlegm-relieving medicines Pinellia, Fructus Trichosanthis, Zhe Fritillaria, Shichangpu on the hemorheology of rats [J]. *Journal of Traditional Chinese Medicine*, 2002 (03): 215-216+225 +5.
- [33] Chen Fujun, Yin Yihua. Clinical study of Tanreqing injection combined with antibacterial drugs in the treatment of pulmonary infections in elderly stroke patients [J]. *Contemporary Medicine*, 2020, 26 (04): 164-165.
- [34] Wei Fangna. Observation on the clinical efficacy of Tanreqing injection combined with antibiotics in the treatment of pulmonary infection in elderly patients [J]. *Electronic Journal of Clinical Medicine*, 2018, 5 (74): 92-93+97.

- [35] Wang Zhanbin, Cui Yi, Lei Haiwen. Observation on the clinical efficacy of Tanreqing injection combined with antibacterial drugs in the treatment of pulmonary infection in elderly patients [J]. *Electronic Journal of Clinical Medicine*, 2018, 5 (57): 169-170.
- [36] He Miao, Ji Gaorong, Shen Xiaohong, Tong Jia, Li Li, Chen Liyun. The therapeutic effect of strengthening the body and removing blood stasis and removing phlegm on acute ischemic stroke and its preventive effect on hospital-acquired pneumonia [J]. *Shanghai Journal of University of Chinese Medicine*, 2014, 28 (03): 20-22.