

Research Progress of Chinese and Western Medicine to Promote Awakening of Consciousness Disorder after Stroke

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Abstract: With the progress of economic level and diagnosis and treatment technology, the proposal of various treatment means and the invention of advanced technology, the survival rate of patients after stroke has been greatly improved, but at the same time, there are various problems of consciousness disorders in survivors. Due to the complex etiology of consciousness disorders at present, the individual differences are large, in order to improve the awakening rate and survival rate of survivors, improve the current social awareness of patients with consciousness disorders to promote awakening, to provide better clinical treatment programs. Therefore, through the analysis of the current mainstream treatment methods such as acupuncture and moxibustion therapy, Chinese medicine therapy, bloodletting therapy, hyperbaric oxygen therapy, brain computer interface, functional magnetic resonance therapy, etc., we can choose a more suitable treatment plan for patients. This article mainly reviews the current research status of traditional Chinese and Western medicine in the treatment of consciousness disorders, discusses the important role of emerging technologies in detecting consciousness level and predicting consciousness recovery, and provides effective diagnosis and treatment methods for patients.

1. Introduction

All kinds of severe brain injuries resulting in loss of consciousness are disorders of consciousness (DoC), such as vegetative state (VS) and minimally conscious state, MCS) coma [1] and so on. However, post-stroke disturbance of consciousness is more common than post-acute cerebrovascular disease. Relevant studies have shown [2] that about 1/3 of stroke patients may experience varying degrees of disturbance of consciousness. At present, the number of patients with chronic disorders of consciousness caused by traumatic brain injury, stroke and hypoxic encephalopathy in China is increasing year by year, bringing huge mental pressure and economic burden to families and society [3]. The sorting and evaluation of the current mainstream treatment methods, so that this part of patients can be effectively treated, has become an urgent problem to be solved. This paper

summarizes the research progress of awakening therapy for Doc patients from the perspective of traditional Chinese and Western medicine as follows:

2. TCM (Traditional Chinese Medicine) Therapy

Disturbance of consciousness, known in ancient times as coma, fainting and lethargy, was first seen in the Neijing. Traditional Chinese medicine believes that consciousness disorder is a disease state, the cause of which is mostly related to the dysfunction of the heart, liver, spleen, kidney and other viscera. In traditional Chinese medicine, the spleen is the origin of acquired life and the source of Qi and blood biochemistry. "Su ask · Taiyin-Yang Ming Theory" cloud: "temper dispersing essence". If the temper is insufficient or the diet is not good, the spleen is not healthy transport Qingyang does not rise, Qi and blood can not be carried on the brain and lead to coma; Therefore, the deficiency of the acquired nature, the acquired nature can not nourish the congenital, so that the awakening effect of patients with dizziness is greatly reduced. Heart, liver, renal dysfunction in the process of consciousness disorders also played an important role, "Inner classic" cloud: "heart hidden God", "liver hidden soul", "kidney hidden will", traditional Chinese medicine that the human body five viscera and six organs through the meridians contact, the heart Lord God, liver hidden soul, kidney hidden will, and the functional activities of the mind are dependent on the role of mind. Kidney hides essence, the main bone produces pulp. The brain is the sea of marrow, and the brain is full of spirit; If the kidney essence deficiency is the pulp sea empty; The deficiency of kidney essence is the deficiency of wind internal movement and faint. Kidney essence deficiency is delirium and disease coma. So many viscera Tongzhi to achieve Yin and Yang harmony, brain awakening god effect. The following are the specific methods of traditional Chinese medicine treatment in recent years:

Acupuncture treatment is an important method in the treatment of post-stroke consciousness disorders in Chinese medicine. Acupuncture can improve consciousness disorders by stimulating specific acupoints, regulating qi, blood and Yin and Yang, and promoting the recovery of brain function. Studies have shown [4] that acupuncture treatment can significantly improve the GCS score of patients with consciousness disorder after stroke, improve the wakefulness rate and efficiency of patients, reduce the fatality rate, and reduce the recovery time of patients with consciousness. Common acupuncture methods such as the awakening of brain and resuscitation acupuncture proposed by Academician Shi Xuemin are widely used in clinical practice. Academician Shi pointed out that patients with dizziness, the beginning of all diseases must be based on God. The acupuncture method first awakens the spirit; The divine modulation will bring qi along, and all diseases will be eliminated. [5], it believes that the basic pathogenesis of dizziness is mostly liver wind, blood stasis, phlegm, etc., which blinds and clears the orifice, causing "the orifice is closed and the deity is not guiding Qi [6]. Therefore, many doctors have widely applied the theory, such as Bi Xiaoli et al. [7] used it in the diagnosis and treatment of patients with consciousness disorder after cerebral infarction. In addition to the above acupuncture method, there are specific acupoint selection methods such as meridian selection, A Shi point, specific points, etc., which have achieved good results in clinical practice, just like Yang Jun's proposed adjustment of Tongdu, reconciling Yin and Yang, regulating spleen and stomach, regulating Qi and activating blood, selecting odd points to nourish the brain, acupuncture Jing point, and open source acupoint selection methods for awakening the brain [8]. At the same time, the wide application of electroacupuncture in recent years has made electroacupuncture widely studied for improving the symptoms of ischemia and hypoxia caused by brain injury, promoting the repair of inflammatory cytokines and neurons, promoting the regeneration of injured peripheral nerves, etc., and improving the hope of the consciousness of patients after stroke [9]. Studies have found that [10] electroacupuncture stimulation has a significant effect on awakening

of patients with consciousness disorder in the acute stage of stroke. In addition, electroacupuncture applied to the head can effectively improve the blood supply to the brain, promote the secretion of transmitters, stimulate the cerebral cortex center, and further improve the consciousness of patients.

Traditional Chinese medicine treatment of post-stroke consciousness disorders from the clear heart and phlegm, phlegm relief, awakening, blood circulation and other aspects of the treatment, such as acute period after stroke Yang closure (phlegm heat fu-fu full) patients, Angong Niu Huang pill, Zixue Dan, Zhibao Dan and other curative effect is better. The data show that patients with cerebral hemorrhage are more suitable for the phlegm-clear and invigorating Angong Niu Huang pill, which can effectively inhibit the increase of blood clots in the brain within 24h, and the absorption effect of hematoma within 3 weeks is distinct; The same Angong Niu Huang pill is also suitable for acute cerebral infarction patients, can be used for the treatment of cerebral infarction patients with neurological impairment symptoms. Zhang Qi et al. [11] used Angong Niu Huang Pill to treat patients with acute cerebral infarction accompanied by dizziness, and Wu Jiang et al. [12] used Angong Niu Huang Pill combined with point tongue method to treat patients with stroke of promoting waking heat and closing, both of which achieved good results. The study [13] found that Xingnaojing injection had protective effects on brain tissue in the penumbra zone of rats with acute cerebral ischemia, alleviating glial cell and blood vessel damage and inhibiting apoptosis. For convalescent patients, supplementing Zhongyiqi and promoting blood circulation to remove blood stasis are mainly adopted, and the main representative prescriptions such as Supplementing Zhongyiqi Decoction and Supplementing Yang Huanwu decoction, etc. Ru Milu et al. proved that Buyang Huanwu Decoction has a good effect on coma patients after stroke [14].

Combining acupuncture and medicine, Zhang Chunhua [15] used oral acupuncture and acupuncture combined with drugs for treatment. Through dialectical treatment, Yangbei was treated with Angong Niu Huang Pill orally (or nasally) followed by Tongfu Xingnao Mixture. Yin closed to save emergency dilute saliva scattered of gleditsia, alum. Then we further remove the phlegm and dampness of the body with distan mixture. And acupuncture Du pulse and foot Jueyin meridian point, jing point purging method (or puncturing bleeding). To get rid of the syndrome with Shenfu injection and save Yin buye mixture and moxibustion Ren mai point. Promote the recovery of the patient's consciousness and function from two aspects of acupuncture and medicine.

Other therapies such as sweating, sneezing, rectal irrigation, bloodletting therapy, music therapy and so on. Sweat therapy should not be limited to the efficacy of relieving the surface. Regulate qi and harmonize Ying wei through sweat method. Studies have shown [16] that micro-sweating of vs patients can make the fu-organs clear. The method of sneezing is a physiologically induced special therapy. As early as in the "Ling Shu · Miscellaneous Diseases" article, it was proposed that "Do, with grass sticks stinging sneezing, sneezing only." Zhang Zhongjing in the book "on Febrile and miscellaneous diseases" useful drugs to take the method of sneezing nose. Through the patient's nasal cavity when taking a hollow tube to pick the end of the medicine a little toward the patient's side of the nostril blowing into that sneeze. If there is no sneeze after blowing the medicine for minutes, then blow on the other side of the nostril, as long as the breath is still sneezing, wake up after sneezing [17]. Rectal irrigation method, for acute stroke patients, intestinal heat and fu organs are more common, turbidity evil upward reverse, blocking light orifice, brain dystrophy, so that god loses its use. He Jianhua et al. [18] proved through a large number of experiments that enema with 60g decoction water of raw rhubarb, once every other day, was effective on the basis of conventional treatment. Zhang Liancheng et al. [19] confirmed through acupuncture combined with enema that this method can effectively shorten the recovery time of patients with consciousness disorders, reduce complications and reduce mortality. Bloodletting therapy: Bloodletting by puncturing collages is a traditional Chinese medicine treatment. Hua Ying et al. [20] improved the recovery rate of patients with consciousness disorder by bloodletting at Jing point. Studies have shown that pricking

bloodletting can reduce fibrinogen content, reduce the expression of intercellular adhesion molecule-1 (ICAM-1) and other inflammatory response factors, reduce red blood cell aggregation, improve blood viscosity, change hemodynamics, and thus inhibit hypercoagulability, improve microcirculation stasis, and increase local blood supply [21]. Music therapy, "Huangdi Nei jing" believes that music is closely connected with the universe and the human qi mechanism, and introduces the five tones into the medical field, which is not only closely related to the human internal organs, emotions and personality, but also can be used to represent the changes of time and space in the world. Through their favorite tune and their own organs resonate, in order to achieve the mind smooth, awakening the spirit and opening the effect. Studies have shown that music plays an important role in regulating the hypothalamic-pituitary axis, sympathetic nervous system and immune system, and it plays a key function in regulating metabolism and energy balance [22]. Jia et al. [23] In the treatment of patients with consciousness disorder after cerebral hemorrhage, the observation group received music therapy on the basis of the control group, 30 min/ time, 5 times/day, for a total of 4 weeks, and found that music therapy was beneficial to promote the recovery of consciousness of patients [24].

3. Western Medicine Treatment

Current clinical treatments for disorders of consciousness include hyperbaric oxygen, transcranial magnetic stimulation, median nerve electrical stimulation, functional MRI, brain-computer interface, etc.

Hyperbaric oxygen is a type of physical therapy that promotes the growth and recovery of nerve cells in the brain by increasing the amount of oxygen in the blood of the brain, thus promoting the awakening of patients with consciousness disorders. Hyperbaric oxygen therapy also reduces brain edema and reduces the amount of oxygen consumed by the brain. Studies have shown that for VS /UWS[25], the effective rate of HBO treatment reached 67.5%.

Functional MRI is a type of imaging examination that assesses brain function using magnetic resonance imaging (MRI). MRI examines the activity of different brain regions in response to various stimuli to understand the structural and functional state of the brain's internal tissues. Shen Zhimeng [26] used 3.0T MRI to better evaluate the pathophysiological changes of traumatic brain injury in the evaluation of severe traumatic brain injury, so as to effectively treat the lesions accordingly.

Brain-computer interface (BCI) refers to the connection of electronic devices with computers or other electronic devices to form a computer-machine communication system, through which patients can communicate with the outside world. Lin Qing [27] tested the online accuracy rate of BCI in 23 patients with DOCs, and compared it with the prognostic GOS score by multivariate regression analysis, and found that the accuracy rate of BCI in predicting the prognosis outcome of patients with DOCs was 84%, indicating that the online accuracy rate of BCI could better evaluate the prognosis of patients.

Median electrical nerve stimulation (MEP) is a non-invasive neuroregulatory technique that stimulates the cerebral cortex to produce brain waves by generating a low-frequency pulse current of a specific frequency through an in vitro pulse generator. MEP can enhance cortical excitability, promote neuronal differentiation, reduce neuronal apoptosis, and regulate synaptic plasticity of neuronal cells. By stimulating the median nerve with low-frequency pulse current, [28] through the median-spinal nerve-cervical pulps-brainstem - thalamic-cortex functional region conduction pathway, MEP can activate the central nervous system repeatedly, thus releasing the electrical stimulation of the inhibited nerve cells and amplifying the activity of the inhibited nerve cells. To restore their function and promote the recovery of nerve cells in vs patients to improve the wakefulness rate.

Drugs include dopamine (DA) receptor antagonists, wakefulness promoting drugs, etc. Dopamine receptor antagonists achieve anti-coma effects by binding to dopamine receptors and inhibiting dopamine release. Currently, the commonly used dopamine receptor antagonist is bromocriptine, which can promote the restoration of consciousness level by blocking the 5-HT receptor. Studies [29] have shown that bromocriptine can shorten the time to wake and the time to wakefulness in patients with consciousness disorders, and improve clinical efficacy. Studies have shown [30] that nimodipine is easy to penetrate the blood-brain barrier after clinical use, enter brain tissue and intracranial blood vessels, and selectively act on brain cells, reduce intracellular calcium ion concentration, relieve cerebral edema symptoms while protecting nerve cell mitochondria, increase cerebral blood flow, and maintain cerebral microcirculation. To achieve the effect of promoting the recovery of consciousness in patients.

DBS is a non-invasive technique, which can stimulate the deep brain by implanted electrodes to achieve visual stimulation. Currently, most of the DBS reported in clinical studies are single implanted electrode implantation surgery, which mainly adopts postoperative implantable electrode implantation surgery or single implantable electrode implantation surgery to promote awakening treatment for patients with consciousness disorders. Qin Peng [31] showed that DBS technology can inhibit abnormal cerebral nerve signals, improve dystonia, and improve the consciousness of vs patients.

4. Conclusions

To sum up, there is still no more effective method for the treatment of consciousness disorder at home and abroad, and the treatment effect is always unsatisfactory compared with the application of a simple program. In recent years, the continuous improvement of the level of traditional Chinese medicine, the continuous in-depth study of ancient books, the continuous improvement of science and technology, such as the intervention of emerging technologies, thus making our research on the disease continue to deepen. At present, people gradually realize that the combination of Chinese and Western treatment is playing a huge role, and the current single diagnosis and treatment method has become a past tense. Through the dialectical treatment of traditional Chinese medicine and the combination of Western medical instruments, a more refined diagnosis and treatment plan can be made. We hope that there will be more effective treatment in the future, and through the joint efforts of Chinese and Western medicine, the consciousness recovery of vs patients will be improved.

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