

The Clinical Treatment of Vascular Dementia Treated by Integrated Chinese and Western Medicine

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Keywords: Vascular Dementia, Pharmacological Treatment, Non-Pharmacological Treatment, Combined Chinese and Western Medicine Treatment

Abstract: Vascular dementia (VD) is one of the most widespread and common diseases in the world today, and is a general term for various types of dementia caused by various cerebrovascular diseases and their risk factors. As China's population ages, the number of patients with vascular dementia continues to rise, which undoubtedly places a great financial and emotional burden on patients, families and society. As the only dementia that is currently recognised as curable, early detection, treatment and rehabilitation of vascular dementia are extremely important. In the treatment of vascular dementia, Chinese medicine and Western medicine have played their respective strengths and have achieved certain clinical efficacy. Nowadays, more and more clinical practitioners are pursuing a combination of Chinese and Western medicine to achieve better clinical results in improving cognitive function and quality of life. In this article, we review the literature on dementia treatment in the past 10 years, and review the recent status of vascular dementia treatment from the perspectives of pharmacological and non-pharmacological treatment, combining Chinese medicine, Western medicine, Chinese and Western medicine, and the application of modern technology, in order to provide reference for clinicians and researchers, and to inspire ideas for the prevention and treatment of this disease.

Vascular dementia (Vad) is a type of central degenerative disease caused by ischemic hypoxic or hemorrhagic brain injury, mainly due to the gradual regression of intellectual memory and cognitive dysfunction, which is mainly manifested as memory loss and disorder, slow response, personality and behavior changes, and personality disorders [1]. According to epidemiological studies, the incidence of VD in China is relatively high, and the prevalence is second only to Alzheimer's disease (AD). In people over 60 years of age, the prevalence of VaD is 1.26% to 2.40%, accounting for 12% to 20% of all causes of dementia[2]. Unlike AD and other types of dementia, VD is the only recognized disease that can be cured, and many researchers and clinicians are actively looking for effective ways to treat this disease in order to improve the cognitive function and quality of life of VaD patients. This paper reviews the recent situation in the treatment of vascular dementia from the perspectives of drug therapy and non-drug treatment in the past 10 years, combining traditional Chinese medicine, Western medicine, integrated traditional Chinese and Western medicine, and the

application of modern science and technology.

1. Classification and Diagnostic Criteria

Classification With the continuous increase of the understanding of the disease, the classification of Va D is also constantly changing, according to the latest international classification standards according to the history and clinical characteristics, VaD can be roughly divided into two categories [3]. One category is acute or subacute, usually with a clear history of stroke, and includes multi-infarct dementia (M ID) and key site infarct dementia (MD). Dementia, SID, Post-stroke dementia (PSD) after stroke. The other is progressive or cryptoscopic onset, usually without a clear history of stroke, and mainly covers subcortical arteriosclerotic encephalopathy, autosomal dominant cerebral artery disease with subcortical infarction and leukoencephalopathy.

Diagnostic criteria Regarding vascular dementia disease, according to the diagnostic criteria for vascular dementia formulated by the Chinese Medical Association, VaD is subdivided into four levels: clinically likely vascular dementia, vascular dementia, confirmed vascular dementia, and exclusionary diagnosis [4]. The following is a brief overview of each: (1) It is likely that vascular dementia: cognitive function is significantly reduced, memory is greatly reduced, and all are in line with DSW-IV-R Diagnostic criteria; Symptoms of dementia develop within 3 months after stroke and last for more than 6 months; Presence of neurologic signs and symptoms such as sensory impairment and hemiplegia; (2) Vascular dementia may be: all symptoms of the patient are consistent with the above most likely vascular dementia, but there is a lack of imaging and temporal evidence; (3) Confirmed vascular dementia: there is a clear clinical diagnosis, and after autopsy and biopsy, it is found that it does not contain neuronal fiber tangles related to the number of age spots and over-age and some other histological features of degenerative diseases; (4) Exclusionary diagnosis: the patient has a disorder of consciousness; Dementia caused by systemic diseases; Psychiatric disorders such as depression; Dementia caused by other neurological disorders such as AD, Lewy body lesions, Parkinson's disease, etc.

2. Treatment of Vascular Dementia

Drug therapy VaD disease, as the only recognized cureable dementia disease, although there is a lack of direct and effective treatment drugs, but through clinical trials and effective means, the safety and efficacy of some drugs in the treatment of V aD have also been verified. The following will summarize the situation of traditional Chinese medicine, Western medicine and combination of traditional Chinese medicine and western medicine for the treatment of vascular dementia.

The treatment of Chinese medicine VaD belongs to the categories of "dementia", "dementia", "dementia", "unwise", "literary obsession", "forgetfulness" and so on in Chinese medicine [4]. Its disease is located in the brain and is closely related to the dysfunction of the heart, liver, spleen and kidneys. The basic pathogenesis is "marrow reduction brain elimination", and its pathogenesis characteristics are based on the deficiency of qi and blood and kidney essence, and the real evil of phlegm and congestion is the standard, and the clinical evidence of the mixture of false and real is mostly seen. In short, the occurrence of this disease is nothing more than the mutual influence of weakness, phlegm and bruising. TCM treatment adheres to the perspective of holistic ginseng, dialectical treatment, and evidence-seeking, and has achieved satisfactory clinical efficacy through multi-component, multi-target and multi-level treatment of VaD. The following will list the research progress of TCM compound and TCM single-flavor medicine research on the treatment of VaD.

Different treatment methods for the treatment of vascular dementia Traditional Chinese medicine is the basic principle of treating diseases, and the theory, method, prescription and medicine formed

by the correct selection of treatment methods are more conducive to precise treatment. On the one hand, the brain is the house of the yuan god, the source of the divine machine, the master of the body, VaD patients are mostly middle-aged and elderly, due to old age kidney failure, long-term illness, insufficient kidney essence, kidney tonic kidney, tonic qi and blood, nootropic enlightenment is the first choice. An Meta analysis done by Yaqiao Yi [5] and others showed that Yiqi invigorating blood prescription drugs may be more effective and safer than Western medicines, and Yiqi and blood prescription drugs can better improve brain microcirculation, stabilize plaques, nourish cerebral nerves, regulate blood lipid levels and even reduce the incidence of cardiovascular and cerebrovascular diseases such as stroke, which is conducive to reducing the degree of nerve function damage and improving patients' lives, intellectual level. And in the treatment In terms of treatment time, Lifang Sun [6] et al. observed the optimal time for the treatment of vascular dementia mice with Yiqi invigorating blood formula, and found that immediate treatment should be taken or the principle of Yiqi invigorating blood method should be taken within 3 days when conditions permit, and Yiqi hemophoretic formula drugs can increase norepinephrine (NE) and dopamine (D) in brain tissue A), the content of serotonin (5-HT) ($p < 0.05$). Thus further improving the metabolism of monoamine neurotransmitters, increasing the content of neurotransmitters in the cortex, and improving the functional recovery of ischemic semi-dark bands. On the other hand, "a hundred diseases are born of qi" and "long-term illness is mostly caused by phlegm". Sputum stasis obstructs the injury of the seven emotions, liver depression stagnation, poor gas machine is not blood astringent, qi stagnation blood stasis, blinding clearance, or liver depression qi stagnation, transverse violation of the spleen, spleen and stomach dysfunction, can not be transferred to transport water wet, brewed phlegm wet, phlegm clearing; Phlegm dissolves fire for a long time and disturbs the mind, which can make the gods useless. Dongyu Min [7] et al. studied the mechanism of action of phlegm and stasis method on VaD gerbils, and found that the phlegm removal method can effectively improve the learning and memory ability of vascular dementia gerbils, and the mechanism of action may be related to calcium-calmodulin-dependent protein kinase II (Ca MKII)/cyclophosphoadenosine effector element binding protein (CREB)/brain-derived neurotrophic factor (BDNF) signaling pathway correlation.

Different TCM compound treatment of vascular dementia TCM has the characteristics of multi-pathway multi-target therapy and has obvious advantages in the treatment of Va D. Xingang DONG [8] et al. believe that congestion obstruction is the main evidence of vascular dementia, and should be treated by activating blood and dissolving stasis and opening up the network. Supplement yang also five soups, from Qing Wang Qingren's "Medical Forest Correction", composed of red peony, Sichuan root, angelica tail, earth dragon, astragalus, peach kernel, safflower, with the effect of tonifying qi and invigorating blood circulation. Clinical studies of the treatment of VaD with the addition and subtraction of the main prescription gradually increased. Combined with modern pharmacology and other related studies, it has been shown that astragalus, the main ingredient in the tonic Yang And Wu Tang, can dilate cerebral blood vessels and improve memory; Angelica and red peony can dilate cerebral blood vessels and improve cerebral microcirculation; Safflower, peach kernel and dragon are beneficial to improve blood circulation and play an anti-platelet aggregation effect. A meta-analysis of Therapy VaD by Jie Zhan [9] et al. showed that such decoctions significantly improved patients' MMSE scores ($p < 0.05$), Improve patient cognition and quality of life. Traditional Chinese medicine believes that renal deficiency, blood stasis and sputum obstruction is the basic pathological basis for the occurrence of V aD, and combined with modern investigation and research, VaD is found Single symptoms are most common in renal deficiency, sputum turbidity, and blood stasis, and the inclusion of symptoms is more common in renal deficiency and sputum stasis. It provides a basis for traditional Chinese medicine to pay attention to the idea of kidney rejuvenation and blood expectorant. Di Huang Drink Zi, from Liu Hejian's

"HuangDi Su Qing Xuan Ming on the Formula" Prescription composition includes: cooked ground yellow, dogwood, cistanche, bayantian, cinnamon, zhizi, mai dong, dendrobium, schisandra, poria, stone calamus, yuanzhi, mint, ginger, jujube. The whole party plays the work of tonifying the kidneys and improving the essence, opening up the phlegm, and awakening the mind and benefiting the brain. According to modern pharmacological studies, rehmannia can improve brain memory, eliminate free radicals in the body, improve the cholinergic system, increase the body's immunity and brain nootropic effect. Fang Xie [10] et al. observed the therapeutic effect of dihuang drink on rats with vascular dementia, and found that the addition and subtraction of dihuang drink may reduce the production of NO in the cerebral cortex by inhibiting the expression of NOS. Reducing its toxic effect on nerve cells thus improving rats' learning and memory ability. FaKe Shang [11] et al. observed the efficacy of dihuang drink in the treatment of vascular dementia after cerebral infarction. Compared with conventional Western medicine treatment alone, the Treatment Group significantly increased the Hasegawa Dementia Scale (HDS) score, lowered the Daily Living Index Scale (ADL), and improved the cognitive impairment and daily living ability of VaD patients compared with conventional Western medicine treatment alone. Treatment of Western medicine At present, as the only recognized and curable dementia disease, the pathogenesis of VaD is not yet clear and unified. Today' mainstream theories on the pathogenesis mainly include cholinergic system theory, excitatory toxicity theory, oxidative stress theory, genetic factor theory and so on. Although the relevant specific drugs have not been identified in the treatment of Western medicines, relevant researchers are also actively exploring reasonable and effective drugs. The American Heart Association panel noted that cholinesterase inhibitors (galantamine, donepezil, kabbalotine) and N methyl D are currently used Aspartate receptor (NMDAR) antagonists (memantine) treat VaD, but more evidence-based evidence is needed. China's "Expert Consensus on the Management of Cognitive Disorders after Stroke 2021" recommends cholinesterase inhibitors, memantine, butanphthalide and other drugs for the treatment of post-stroke cognitive impairment. In addition, the patient's mental symptoms, various bad behaviors, sleep disorders, etc., should also be treated with corresponding drugs. In summary, the treatment of VaD is mainly related to reducing cognitive impairment and improving life capacity. The following describes the treatment of VaD commonly used in clinical practice, such as cholinesterase inhibitor drugs, nootropics, and antidepressants.

Cholinesterase inhibitor drugs Cholinesterase inhibitors are commonly used drugs for the treatment of patients with cognitive dysfunction, including donepezil, kabalatin, rivastigmine and so on[12]. Cholinesterase inhibitors inhibit acetylcholinesterase (AChE) activity, reduce acetylcholine decomposition in the synaptic space, inhibit its activity, increase the number of acetylcholine, increase the rate of nerve conduction in memory brain areas, and further improve cognitive function.

Nootropic oxiracetam is a derivative of γ -aminobutyric acid and belongs to the pyrrolidone nootropics. It can directly pass through the blood-brain barrier and the human cerebral cortex, can affect glutamatergic, cholinergic and other neurotransmitter systems, mobilize the recovery and reconstruction of undamaged brain cells and tissues, increase the synaptic plasticity of neurons, improve brain tissue metabolism and oxygen supply, and improve patients' cognitive function. Shu Liu [13] et al. found that the treatment of patients with Oxiracetam combined with butylphthalide softgels after stroke is conducive to improving patients' medication adherence, controlling dementia symptoms, and improving cerebral blood flow indicators, and the mechanism may be related to the upregulation of serum BDNF and bFGF levels. A meta-analysis of Oxiracetam in the treatment of vascular dementia by Shiwei Qu [14] et al. showed that the efficacy of Oxiracetam in the treatment of VaD was affirmative, the cognitive function of patients was significantly improved, the adverse reactions were mild, and there was a good clinical promotion prospect.

Antidepressant drugs In recent years, more and more investigations have found that in addition to cognitive function symptoms, dementia patients will also be accompanied by certain psychotic symptoms, depression, anxiety, behavioral abnormalities, etc., collectively known as behavioral and psychological symptoms of dementia (BPSD) [15]. Among them, 61% of Alzheimer's patients have psychiatric symptoms, of which apathy, depression and agitation are the most common. Depression is one of the most common BPSDs and one of the prodromal manifestations of dementia. The specific pathogenesis is not yet clear, according to the recommendation of the latest version of the dementia diagnosis and treatment guidelines published by the Working Group of Clinical Practice Guidelines for Dementia in China [16]. Early effective antidepressant therapy improves cognitive function and quality of life. Selective serotonin reuptake inhibitors (SSRIs) include citalopram hydrobromide, escitalopram oxalate, paroxetine hydrochloride, sertraline hydrochloride, etc. Han Fei and Yao Nan [17-18] observed and compared the treatment of duloxetine hydrochloride enteric-coated tablets and duloxetine hydrochloride capsules with VaD patients with depression with donepezil hydrochloride, respectively. It was found that the improvement of clinical efficacy in the experimental group and the Hamilton Depression Scale (HAMD) and Hamilton Anxiety Scale (HAMilton Anxiety Scale) were better than those in the control group, and the difference was statistically significant ($p < 0.05$). Zhao Xiaoya [19] et al. observed the clinical effect of 114 VaD patients in the treatment of vascular dementia with depression with escitalopram combined with nimodipine and donepezil. The results showed that the combination of three drugs could effectively and timely improve dementia and depression and reduce adverse reactions ($p < 0.05$). In short, the rational and effective use of antidepressants is conducive to improving the adverse symptoms of dementia.

Treatment of Integrated Chinese and Western Medicine With the continuous progress and development of medicine, whether it is traditional Chinese medicine or Western medicine, many effective agents have been developed from their own point of view and actual situation to deal with vascular dementia. Clinical studies have also shown that western medicine treatment inevitably has poor efficacy and adverse reactions. Traditional Chinese medicine has the advantages of multi-channel, multi-target, good safety [20], and seeking common treatment with traditional Chinese and Western medicine has become a new way, and clinical results have been more satisfactory. The following is a summary of the combination of Chinese and Western medicines and needles for the treatment of VaD.

Treatment of Proprietary Chinese Medicines combined with Western Medicines Menglong Shi [21] et al. analyzed the reticular Meta of oral proprietary Chinese medicines for the adjuvant treatment of vascular dementia. The analysis showed that proprietary Chinese medicines combined with chemicals were superior to single-use chemicals in terms of therapeutic efficiency, improving cognitive function, improving daily living ability, and reducing the degree of clinical dementia, and no risk of increasing adverse reactions was found. The main types of proprietary Chinese medicines commonly used in clinical practice are as follows: Tianzhi granules, Yang serum brain granules, Ginkgo biloba, Cerebral Heart Capsules, Cerebral Pulse Tai Capsules, Pulse Blood Kang Capsules, Compound Sea Snake Capsules, Pulse Blood Thinning Oral Liquid, etc. Zeng Yi's clinical research [22] further supports the above view, and believes that Cerebrosynthesis Capsules and Yang serum brain granules may be the best combination of drugs.

Treatment of acupuncture combined with Western medicine Some studies have shown that Yulong Jiang [23] acupuncture intervention VaD can inhibit nerve cell apoptosis, and has the effects of repairing the neurovascular units around the vascular foci, reducing the viscosity of whole blood, regulating the expression of small molecule substances, reducing inflammation, and improving behavior. In addition, Yan Zhou et al. [24] observed the clinical efficacy of acupuncture combined with donepezil and nimodipine in the treatment of senile vascular dementia, and found

that acupuncture hand less yin heart meridian and hand yin pericardial trans-acupuncture treatment VD efficacy is accurate, can effectively improve the patient's cognitive function and daily living ability, the mechanism of action may be related to the reduction of serum CRP level.

Non-pharmacological treatment As the number of diseases increases and the pathogenesis becomes more complex, the pharmacological treatment of V aD is not very effective [25]. More and more people use non-pharmacological treatment in order to achieve better clinical results. The following is a summary of the research on the treatment of V aD from three perspectives: traditional physiotherapy, modern technology, and other therapies.

Traditional physiotherapy for vascular dementia Traditional chinese medicine has attracted more and more attention, and it is often used as an adjunctive treatment for the treatment process of V aD. Common ones are TCM emotional care, moxibustion, massage, gua sha, low-frequency pulses, etc. Yayan Lan et al. [26] used TCM emotional care to observe changes in anxiety and depression in VD patients. It is believed that TCM emotional care can effectively alleviate anxiety and depression in VD patients, especially in accelerating the recovery of nerve function and improving the ability to take care of themselves in life ($p < 0.05$). Xiangguo Ding et al. [27] used mindfulness therapy to observe its therapeutic effect on dementia patients with anxiety and depression. The results showed that the SAS and SDS scale scores of the patients in the intervention group were significantly lower than those in the control group ($p < 0.05$). The incidence of adverse reactions in the intervention group was significantly lower than that in the control group ($p < 0.05$); The scores of various quality of life indicators in the intervention group were significantly higher than those in the control group ($p < 0.05$). The effectiveness and safety of the emotional care method are further verified. Meiling Diao [28] et al. observed acupuncture combined with abdominal tuina therapy and found that it was effective in improving cognitive function, daily living ability, and plasma serotonin values in V aD patients. In addition, Kun Yang et al. [29] found that moxibustion may promote Bcl-2 release and inhibit apoptosis of hippocampal neurons by reducing the expression of hippocampal Bax, cytC, Tom20 and PUMA proteins in dementia rats and other mechanisms to improve cognitive function in VD rats.

Modern technology for the treatment of vascular dementia With the continuous updating of medical technology, new technologies can be applied to the entire stage of the occurrence and development of the disease. A meta-analysis by Wang Yi [30] et al. showed that transcranial magnetic stimulation (TMS) improved cognitive function in patients with AD, and that high frequencies were superior to low frequencies. In addition, hyperbaric oxygen therapy is also used to treat VaD. Yunyun Liang [31] et al. learned that ginkgolide combined with hyperbaric oxygen therapy can significantly reduce serum inflammatory factor levels in Va D patients and improve cognitive impairment. Guochun Xu [32] et al. found that the treatment of vascular dementia in the elderly with hyperbaric oxygen can significantly improve MMSE scores, reduce behavioral ability points, effectively improve the cognitive function status of patients with mild and moderate VD, improve patients' memory, computing power, orientation, reduce dementia symptoms, enhance patients' behavioral ability, and improve blood rheology indicators.

Other therapies for the treatment of vascular dementia Some common treatment modalities in clinical practice include music intervention [33], light therapy, exercise therapy, aromatherapy, doll therapy, etc. Studies have shown that these therapies are to a certain extent conducive to improving the cognitive function, poor emotional state and self-care ability of Alzheimer's patients.

3. Conclusions

Prospect As the only type of dementia recognized for early prevention, vascular dementia is of great significance and social value for the study of its pathogenesis and treatment. In the future

treatment process, we should adhere to the unity of drug therapy and non-drug treatment, the combination of traditional Chinese and Western medicine, and the use of modern science and technology and other medical rehabilitation methods to jointly pay attention to the treatment of vascular dementia. In addition, the psychosocial factors of patients should also be valued and addressed in a timely and effective manner.

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