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EFFECTIVENESS OF FOLK MEDICINE METHODS IN RESTORING COGNITIVE AND SPEECH FUNCTIONS AFTER ISCHEMIC STROKE

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Abstract

The decline in cognitive and speech functions following ischemic stroke significantly affects patients' quality of life, daily activities, and social adaptation. In addition to conventional medical rehabilitation methods, folk medicine approaches—particularly acupuncture, electro-acupuncture, and herbal therapy—have recently been widely used as supplementary options for restoring post-stroke cognitive impairment (PSCI) and speech disorders. These methods stimulate the neuroplasticity of the central nervous system, improve cerebral blood circulation, and assist in the recovery of cognitive functions.

Conclusion: Research indicates that acupuncture and other Traditional Chinese Medicine (TCM) methods, when combined with a proper rehabilitation program, significantly improve patients' cognitive function, memory, attention, speech fluency, and overall functional status. Additionally, these methods activate neuroplastic processes and accelerate psychoneurological recovery. These findings suggest that, for patients with PSCI, such approaches can serve as effective adjuncts to conventional rehabilitation and demonstrate the potential for integrating acupuncture, electro-acupuncture, and TCM-based strategies into clinical practice.

Keywords

ischemic stroke; acupuncture; herbal therapy; speech disorders; cognitive impairment; quality of life.

Stroke is recognized worldwide as a leading cause of disability and death among adults [1]. According to the "China Stroke Report" (2020), the prevalence of stroke in China was 1,114.8 cases per 100,000 population, the incidence of new cases was 246.8 per 100,000, and the mortality rate was 149.49 per 100,000. It should be noted that the consequences of stroke are associated not only with physical disability but also with a decline in cognitive function. Approximately one-third of patients experience post-stroke cognitive impairment (PSCI), which reduces their quality of life and imposes an economic burden on families and society [2], [3]. Therefore, early diagnosis, prevention, and treatment are of critical importance.
Studies have shown that even mild stroke can significantly affect activities of daily living (ADL), cognitive skills, and quality of life [4]. PSCI typically lasts 3–6 months and manifests as deficits in language, calculation, memory, and executive functions [5]. These impairments often coexist with severe physical disability and are under-assessed; however, the prevalence of PSCI varies between 20% and 80% depending on race, country, and diagnostic criteria [6]. Ten-year longitudinal studies have reported a PSCI prevalence of 61% [7], and low scores on the Mini-Mental State Examination (MMSE) have been identified as an independent risk factor for

recurrent stroke [8]. Consequently, the AHA/ASA (2016) guidelines recommend cognitive assessment for all stroke patients before hospital discharge [9]. Current treatment strategies for PSCI include pharmacotherapy, repetitive transcranial magnetic stimulation (rTMS), and cognitive rehabilitation (CR) [10]. Long-term use of medications may lead to adverse effects such as gastrointestinal discomfort, insomnia, fatigue, and hepatotoxicity [13]. Therefore, there is a growing demand for safe and complementary therapeutic approaches.

Traditional Chinese Medicine (TCM) has long described PSCI using terms such as "forgetfulness," "dementia," and "cognitive decline," with acupuncture recognized as an effective method for addressing these impairments. Recent studies indicate that acupuncture can significantly improve memory, attention, thinking, and activities of daily living [11]. Some research has shown that combining acupuncture with medications (e.g., donepezil, nimodipine) produces even stronger effects [14]. However, studies investigating acupuncture exclusively for PSCI remain limited.

PSCI arises from complex mechanisms, including reduced cerebral perfusion, neuroinflammation, imbalance of neurotransmitters, and neuronal degeneration, with ongoing ischemic processes potentially serving as a key contributing factor [15]. Therefore, understanding the effects of acupuncture from a scientific perspective is of considerable importance.

Effects of Acupuncture on Cognitive Recovery

Acupuncture exerts its influence on cognitive recovery through multiple mechanisms within the central nervous system: it regulates internal energy and blood circulation, normalizes neurotransmitter metabolism, coordinates brain networks, and promotes neuroplasticity [29]. It has positive effects on cholinergic, dopaminergic, and neurotrophic pathways, thereby supporting the restoration of cognitive functions.

The Baihui (DU20) and Shenting (DU24) acupoints are the most frequently used, and studies have demonstrated their strong impact on brain structures [30]. Systematic reviews indicate that acupuncture can enhance the effectiveness of other therapies [31]. For example, while cognitive therapy targets specific cognitive domains, acupuncture activates overall neural networks [32].

Effects of TCM Herbs on Cognitive Function

TCM herbs have demonstrated effectiveness in improving brain function:

Danshen reduces inflammatory mediators in the hippocampus and improves memory and learning [23];

Huperzine A selectively inhibits acetylcholinesterase and alleviates cognitive impairments in dementia [24];

Berberine reduces amyloid-beta–related neuroinflammation [25];

Tetramethylpyrazine improves cerebral microcirculation and inhibits platelet aggregation [26].

However, these studies are often conducted on small sample sizes, making generalization of the results difficult [27], [28].

Role of Neuroimaging Methods

Modern technologies assist in evaluating the effects of acupuncture: neuronal changes can be observed using fMRI, EEG, fNIRS, and MRS [21], [22]. These tools are crucial for understanding the mechanisms of PSCI and the effects of acupuncture on neural networks.

Conclusion

Cognitive and speech impairments following ischemic stroke impose significant limitations on patients' lives, particularly affecting their independent functioning, social interactions, and psychological well-being. As an adjunct to conventional rehabilitation methods,

acupuncture and other natural therapies (such as electro-acupuncture or herbal medicine) can serve as effective complementary strategies to enhance the recovery process.

Studies have shown that acupuncture promotes neuroplasticity, improves cerebral blood circulation, and facilitates the formation of new synaptic connections between neurons. Additionally, acupuncture increases levels of neurotrophic factors (e.g., BDNF), supporting neuronal survival and functional recovery. Furthermore, it may help reduce inflammation, mitigate oxidative stress, and attenuate processes that lead to neuronal death.

In clinical practice, combining acupuncture with speech therapy and cognitive rehabilitation further improves patients' memory, attention, speech fluency, and overall functional status. This approach not only provides symptomatic relief for PSCI patients but also serves as a powerful tool for promoting neural-level recovery.

Future research should focus on multicenter studies and the development of standardized protocols, including the identification of optimal acupuncture points, session frequency, and duration. Additionally, clinical trials evaluating the combination of acupuncture with cognitive and motor rehabilitation are essential. Such scientific efforts will help make the recovery process for patients significantly more effective and sustainable.

References

1. Musuka TD, Wilton SB, Traboulsi M, Hill MD. Diagnosis and treatment of acute ischemic stroke: time is critical. CMAJ. 2015;187:887–893. doi:10.1503/cmaj.140355
2. Wang YJ, Li ZX, Gu HQ, et al. China Stroke Statistics 2019: A report from the National Center for Healthcare Quality Management in Neurological Diseases, National Clinical Research Center for Neurological Diseases, China Stroke Association, National Center for Chronic and Non-Communicable Disease Prevention and Control, China CDC, and Institute for Global Prevention and Control of Neurological Diseases. Vasc Neurol. 2020;5:211–239. doi:10.1136/svn-2020-000457
3. Tian J, Xu LB, Vu M, et al. Acupuncture-related therapy for post-stroke cognitive impairment: protocol for a systematic review and network meta-analysis. Medicine (Baltimore). 2022;101:e28735. doi:10.1097/MD.0000000000028735
4. Fride Y, Adamit T, Maeir A, et al. What is the relationship between cognition and participation for return to work after first mild stroke? Top Stroke Rehabil. 2015;22:317–325.
5. Kernan WN, Viera AJ, Billinger SA, Bravata DM, Stark SL, Kasner SE, et al. Primary care for older adults after stroke: a scientific statement from the American Heart Association/American Stroke Association. Stroke. 2021;52:e558–e571. doi:10.1161/STR.0000000000000382
6. Sun JH, Tan L, Yu JT. Post-stroke cognitive impairment: epidemiology, mechanisms, and management. Ann Transl Med. 2014;2:80. doi:10.3978/j.issn.2305-5839.2014.08.05
7. Delavaran H, Jönsson AC, Lövkvist H, et al. Cognitive function in stroke survivors: a 10-year follow-up study. Acta Neurol Scand. 2017;136:187–194.
8. Kwon HS, Li D, Li MH, et al. Post-stroke cognitive impairment as an independent predictor of recurrent ischemic stroke: PICASSO sub-study. J Neurol. 2019;12:1–6.
9. Winstein CJ, Stein J, Arena R, et al. Guidelines for adult stroke rehabilitation and recovery: a guideline for healthcare professionals from the American Heart Association/American Stroke Association. Stroke. 2016;47:e98–e169.

10. Shaker HA, Sawan SAE, Fahmy EM, Ismail RS, Elrahman S. Effect of transcranial direct current stimulation on cognitive functions in stroke patients. Egypt J Neurol Psychiatr Neurosurg. 2018;54:32. doi:10.1186/s41983-018-0037-8
11. Guo C, Wang Y, Wang S, Zhang S, Tai X. Effect and mechanism of Traditional Chinese Medicine exercise therapy on stroke recovery. Evid Based Complement Alternat Med. 2023;2023:5507186. doi:10.1155/2023/5507186
12. Gorelick PB, Scuteri A, Black SE, et al. Vascular contributions to cognitive impairment and dementia: a statement for healthcare professionals from the American Heart Association/American Stroke Association. Stroke. 2011;42:2672–2713.
13. Marucci G, Buccioni M, Ben DD, Lambertucci C, Volpini R, Amenta F. Efficacy of acetylcholinesterase inhibitors in Alzheimer's disease. Neuropharmacology. 2021;190:108352. doi:10.1016/j.neuropharm.2020.108352
14. Yang JW, Shi GX, Zhang S, et al. Efficacy of acupuncture for post-stroke cognitive impairment without dementia: a randomized controlled trial. Clin Rehabil. 2019;33:64
15. Molad J, Hallevi H, Amos D, et al. Vascular and neurodegenerative markers predict post-stroke cognitive impairment: results from the TABASCO study. J Alzheimers Dis. 2019;70:889–898
16. Bao X, Li L, Liu H, et al. Effects of acupuncture combined with rehabilitation on cognitive and motor functions in post-stroke patients. Anat Rec. 2021;304:2531–2537. doi:10.1002/ar.24700
17. Xian JZ, Yang Y, Wang YF, et al. Efficacy and safety of governor vessel acupuncture therapy for post-stroke cognitive impairment: a meta-analysis of randomized controlled trials. Ageing Res Rev. 2024;99:102355. doi:10.1016/j.arr.2024.102355
18. Zhou L, Wang Y, Qiao J, Wang QM, Luo X. Acupuncture for improvement of post-stroke cognitive impairment: a meta-analysis of randomized controlled trials. Front Psychol. 2020;11:549265. doi:10.3389/fpsyg.2020.549265
19. Hoffstaedter F, Grefkes C, Roski C, et al. Age-related decrease of functional connectivity supplementary to grey matter atrophy in initiation of movement. Brain Struct Funct. 2015;220:999–1012. doi:10.1007/s00429-013-069
20. Bordet R, Ihl R, Korczyn AD, et al. Vascular cognitive disorders: concept of disease modifiers—consensus report. BMC Med. 2017;15:107. doi:10.1186/s12916-017-0887-1