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Abstract

A number of studies and meta-analyses indicate that there is no clear evidence that acupuncture has additional value to post-stroke rehabilitation. This article outlines key issues underlining the failure of the acupuncture treatments in previous studies: delay in intervention, incorrect procedures and inadequate treatments. The authors offer suggestions, based on years of relevant practice, on how acupuncture should be done to effectively foster stroke recovery.

Introduction

The World Health Organization estimates that 15 million individuals suffer from stroke annually worldwide, most of whom in developed countries where hypertension, hypercholesterolemia and cardiac diseases are prevalent. Stroke is the third leading cause of fatality and ranks highest as a cause of disability.¹

Western medicine has made some advances in the treatment of strokes, including the use of Tissue Plasminogen Activator (tPA) and intracranial angioplasty. However, these procedures are not indicated for or accessible to all stroke patients. Despite receiving tPA in the recommended window, 58% of the patients still die or end up with severe disabilities.²

Typical post-stroke care in the USA starts with seven days of hospital stay, then one to two weeks of physical therapy, occupational therapy and speech therapy in a rehabilitation facility. After three or more weeks of rehabilitation as an outpatient, the treatment comes to an end, but the patient's recovery is far from complete. In one

study³ on ischemic stroke survivors who were at least 65 years of age, the following disabilities were observed six months after stroke:

- 50% had some hemiparesis.
- 30% were unable to walk without some assistance.
- 26% were dependent in activities of daily living.
- 19% had aphasia.
- 26% were institutionalized in a nursing home.

Obviously, there is a lot of room for improvement in standard stroke protocol.

Can acupuncture really benefit stroke patients?

Many people have asked this question. Our answer is a definite “yes”. However, recent western research and meta-analyses make the claim that there is no clear evidence that acupuncture has additional value for post-stroke rehabilitation.^{4,5} Why is there a discrepancy? Whose statement is true, ours or the researchers’? Both are valid. What is more accurate is: acupuncture can significantly benefit stroke patients if it is done right; otherwise it is of little value. Our own experience with stroke patients over the years demonstrates that when applied correctly, acupuncture can shorten recovery time to as little as two weeks and restore function to over 95% in some patients.

Case Reports

(1) In December 2010, a man in his fifties suffered an ischemic stroke. Three days after the stroke onset, he presented himself at our clinic with slurred speech, right hemiparesis and wheelchair bound. After two hours of acupuncture treatment, he

was able to move his right upper extremity. The next day, less than 24 hours later, he stood up and walked on his own. On his third day of treatment, he climbed the stairs. He recovered all motor functions within two weeks.⁶

(2) One night in 1992, Mr. Shen, president of an acupuncturist association in California, suddenly dropped on the floor and became stuporous. A CT scan of his brain revealed a big lesion in the left cortex and basal ganglia, due to hemorrhage of the middle cerebral artery. Within seven hours, we started Zhu's Scalp Acupuncture treatment on him, and continued for 20 consecutive days. Two weeks later, he started to talk. After three months, he was able to return full-time to his acupuncture practice and administrative work.

(3) In 1998, a 55 year-old man discharged himself from the Taipei Veterans General Hospital of Taiwan despite his doctor's advice. It was the 8th day after his stroke when he arrived at our clinic in a wheelchair. His ischemic stroke left him paralyzed on the right side. Twenty minutes after applying scalp acupuncture needles, he stood up. An hour later, he took a few steps. After two weeks of daily acupuncture, he started walking with a cane. He ultimately regained all his gross and fine movements. Today he is living his life as a fully-recovered stroke patient and still persists in his daily exercise routine to stay healthy .

(4) In 2007, an MD referred his 58 year-old male patient to us. This patient had an ischemic stroke and was bed-ridden for 20 days. On the first visit, he came in a wheelchair but left our clinic walking down two flights of stairs without assistance. After 10 daily Zhu's Scalp Acupuncture treatments of three hours each, he returned to work.

These four case histories are a small representative sample of the large number of stroke cases we have treated. What is common in these patients is that all were treated very early and had nearly full functional recovery.

Discussion

How can we make acupuncture maximally beneficial for stroke patients? Below are recommendations based on Zhu's 50 years of clinical experience.

There are a few important factors to consider.

I. Time is crucial

There is a misconception that acupuncture is contraindicated in the acute stage of stroke. Quite the contrary, acupuncture should intervene promptly, as early as the first hour after onset. Every hour of delay can cause a difference in the outcome. The best treatment windows are, in decreasing order of therapeutic value: (1) the first three hours, (2) the first three days, (3) the first week, (4) the first month, (5) the first three months, and (6) the first six months. Both ischemic and hemorrhagic stroke can receive acupuncture treatment from the first day, but they differ in operation details.

Acupuncture has exceptional value in the first 3 to 72 hours. As evidenced by our own clinical cases, acupuncture seems to be able to salvage the penumbra surrounding the core of the stroke. Usually about 72 hours after a stroke, cerebral edema starts to form and it is very damaging. Although the mechanism is not well understood, acupuncture triggers some changes in the brain that result in the protection of brain cells from necrosis. Therefore it prevents or reduces edema and

consequently promises a better prognosis. The often dramatic results in our stroke patients suggest that acupuncture could promote the reperfusion of the brain in a very short time, perhaps through the activation of the collaterals or the dissolution of fibrin around the clot. More research is needed to understand the mechanism.

Rehabilitation, like acupuncture, should also start as soon as vital signs are stable. This is particularly important for aphasia and dysphagia. Our experience shows that if speech therapy does not begin within the first month, speech recovery will be almost impossible or very limited. Again, ischemic and hemorrhagic strokes call for different types of rehabilitation exercises during the acute phase.

II. The treatment method

(1) Choose the right acupuncture style

Which acupuncture protocol is better for treating strokes? For many years Zhu had used conventional body acupuncture to treat strokes but was not satisfied with the results. So in the 1970's he started to explore scalp acupuncture and developed Zhu's Scalp Acupuncture. Often people are amazed at the outcome. For neurological conditions such as strokes, scalp acupuncture is by far the most effective.

(2) Do the correct needle manipulation

Acupuncture is not just about inserting needles at certain points, it is about regulating the qi flow. Hence manipulation of the needles is necessary to affect the qi. The technique and amount of manipulation vary with the type of stroke, stage of the disease and the patient's condition. For example:

- If the patient is hypertensive or nervous or still hemorrhaging, very light stimulation is desirable on the scalp treatment areas.
- It is not uncommon that the paralyzed side of the body feels colder to touch. When this happens, the classical technique “Setting Mountain on Fire” often brings miraculous change to the body temperature. “Unblocking the channels, warming the Yang and promoting Qi”, as these are called in Chinese medicine, certainly will benefit the patient’s recovery. It should be noted, however, that this warming effect is not achievable by using electrical stimulation.
- During recovery stage, one can use stronger stimulation both on the scalp and body.
- A comatose stroke patient whose vital signs are stable needs stronger stimulation.
- Strong stimulation is contraindicated for spasms.

(3) Perform appropriate Daoyin

As mentioned before, acupuncture is not simply an act of inserting needles at certain points. Acupuncture is a complete therapy that involves, besides needling, psychological counseling, encouragement, building the patient’s confidence to heal, helping the patient to relax, teaching the patient how to talk and to move. All these things, which we call “Daoyin,”⁷ should be organically integrated into every acupuncture session.

Daoyin has a much broader implication than conventional physical, occupational or speech therapy. Since its content can vary so much, an

experienced acupuncturist customizes specific daoyin activities to suit the needs of the patient at particular points in time. It requires that the acupuncturist is knowledgeable of the nervous system, the musculoskeletal system, sports medicine, rehabilitation science, and various traditional Chinese healing modalities such as martial arts and taiqi.

The following are a few examples of Daoyin:

- (a) A stroke patient with dysarthria or Broca's aphasia is instructed to move his/her tongue in different directions and make sounds during acupuncture.
- (b) A stroke patient with facial palsy is instructed to open/close his/her affected eye, and to exercise his/her face muscles during acupuncture.
- (c) A stroke patient with paralytic lower limb is instructed to stand and walk with support.
- (d) A stroke patient with paralytic upper limb is instructed to push and pull on his/her affected arm during needle manipulation.

Acupuncture with Daoyin is not a replacement but a great enhancement to conventional rehabilitation therapies. However, there are several areas where they differ.

- (a) Our approach is proactive. We help a patient sit before he can sit on his own. We make the first attempt to stand when the patient cannot even imagine or believe it is possible. We provide whatever support the patient needs to regain his lost function instead of waiting for the first sign of the function to come back spontaneously. A proactive approach not only speeds up recovery, it boosts the patient's self-confidence.

- (b) When doing Daoyin, we give the patient only minimal assistance while taking adequate precaution and safety measures. The more active efforts from the patient, the better the treatment results. By the same token, we discourage the use of orthoses. Muscles, tendons and ligaments can be strengthened by proper exercises. We have corrected countless foot inversion without using ankle-foot orthoses (AFO) and not causing any harm to the patient. Orthoses rob the patient's opportunity to exert effort on his/her own, resulting in muscle atrophy and permanent dependence on a brace.
- (c) Unlike conventional therapy, we find that supporting a patient on his paralyzed side instead of the good side brings better outcome in the end.

III. The right dose of treatment

Concentration and repetition are necessary to provoke and reinforce plastic changes in the brain. Hence, to achieve speedy functional recovery after a stroke, intensive treatments are paramount. The frequency and duration of acupuncture treatments (needling and Daoyin combined) must be adequate especially in the first three months. A daily three to six hours of focused and active Daoyin engagement is the most desirable. We recommend multiple short sessions to avoid fatigue. The average two to six hours a week that most stroke patients currently receive in out-patient rehabilitation facilities is dismally insufficient.

IV. Management and prevention of complications following a stroke

- (a) Seizures: Because anti-seizure medication is usually sedative, it hampers the rehabilitation process. Scalp acupuncture is an effective substitute without causing adverse side-effects.
- (b) Blood thinning: Avoid overuse of warfarin or coumadin to prevent secondary hemorrhage.
- (c) Body postures: Spasticity does not set in immediately after a stroke and it can be avoided if more attention is given to body postures in the first month. Always keep the patient's head, body, and limbs in normal physiological positions, especially the joints - neck, elbow, wrist, fingers, ankle and feet.
- (d) Dementia and Parkinsonism: These are common after-effects that manifest after a long period of inactivity as the brain atrophies.^{8,9} Because they are not always apparent immediately after a stroke, they are often neglected in the rehabilitation process. Acupuncture is an excellent preventative treatment.

Conclusion

Acupuncture can be a major benefit to stroke rehabilitation when administered correctly. Results are most remarkable in the acute stage. First, treatment must begin promptly. Earlier intervention promises fewer deficits. Second, an effective acupuncture system should be employed. Scalp acupuncture excels over body acupuncture in treating neurological conditions such as strokes. After insertion, needles should be manipulated to ensure qi flow. Third, appropriate Daoyin must be carried out simultaneously. Finally, treatments have to be repeated frequently for reinforcement. In this manner a stroke patient will achieve a faster and more complete recovery.

By sharing our experience, we hope that acupuncture treatments for stroke can be optimized and that future research on this topic can yield more meaningful results.

Author Disclosure Statement

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