

THE EFFECTIVENESS OF ACUPUNCTURE POINTS LI4 (HEGU), LI11 (QUCHI), ST36 (ZUSANLI), SP10 (XUEHAI), AND BL17 (GESHU) IN STROKE PATIENTS WITH BLOOD STASIS SYNDROME AT ACUPUNCTURE CENTER DB

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ABSTRACT

Stroke is one of the leading causes of disability worldwide. In Traditional Chinese Medicine (TCM), ischemic stroke is classified as blood stasis syndrome, characterized by stagnation of Qi and blood in the brain meridians. This study aims to determine the effectiveness of acupuncture point combinations LI4 (Hegu), LI11 (Quchi), ST36 (Zusanli), SP10 (Xuehai), and BL17 (Geshu) in improving motor function in stroke patients with blood stasis syndrome. A quasi-experimental one-group pretest–posttest design was used involving 30 patients at Acupuncture Center DB Bandung. Acupuncture was applied twice weekly for four weeks, and motor function was assessed using the Barthel Index. Results showed a significant improvement ($p < 0.05$), with the mean of Barthel score increasing from 20.00 to 69.17, indicating acupuncture's effectiveness in enhancing motor recovery.

Keywords: *Acupuncture, Stroke, Blood Stasis Syndrome, Motor Function, Traditional Chinese Medicine.*

INTRODUCTION

Stroke remains one of the leading causes of disability and mortality globally. According to the World Health Organization (2025), stroke contributes to 11% of total deaths worldwide. In Indonesia, stroke ranks as the primary cause of disability (Widjaja, 2020).

In Traditional Chinese Medicine (TCM), stroke is referred to as Zhong Feng and is attributed to internal factors such as wind, fire, phlegm, and blood stasis obstructing the meridians, which leads to impaired Qi and blood flow in the brain. Blood stasis syndrome is a primary pathological basis of stroke and is characterized by poor circulation, purple tongue, and choppy pulse (Zhang et al., 2020).

Acupuncture therapy aims to restore Qi and blood circulation, promote neurological recovery, and improve motor function. Previous studies (Liu et al., 2020; Li et al., 2021) have shown that acupuncture enhances cerebral perfusion and neuroplasticity, thus aiding post-stroke rehabilitation. This study evaluates the effectiveness of acupuncture points LI4, LI11, ST36, SP10, and BL17 in improving motor function in stroke patients with blood stasis syndrome.

RESEARCH METHOD

This study used a quasi-experimental one-group pretest–posttest design and was conducted at Acupuncture Center DB Bandung from May to June 2025. The research involved 30 stroke patients diagnosed with blood stasis syndrome who were selected purposively from 58 potential participants. Inclusion criteria included patients with stable vital signs, a minimum of one month post-stroke, and no severe comorbidities, while exclusion criteria included patients with communication difficulties or severe systemic disorders.

Acupuncture treatment was administered bilaterally at LI4 (Hegu), LI11 (Quchi), ST36 (Zusanli), SP10 (Xuehai), and BL17 (Geshu). Sterile disposable needles were used, inserted perpendicularly to a depth of 0.5–1 cun depending on the location of each point, and retained for 20 minutes per session. Each participant received treatment twice weekly for four consecutive weeks. The deqi sensation was ensured at all points to optimize therapeutic effects.

Motor function was evaluated using the Barthel Index, a standardized scale measuring activities of daily living (ADL), such as feeding, bathing, and mobility. Data collection was carried out before and after the four-week treatment period. The collected data were analyzed using the Shapiro–Wilk test to assess normality and the Wilcoxon signed-rank test to determine differences between pretest and posttest results, with a significance level set at $p < 0.05$.

Ethical approval for this study was obtained from the Ethics Committee of Universitas Medika Suherman, and all participants provided informed consent before participation.

RESULTS AND DISCUSSION

The analysis results showed that acupuncture at points LI4 (Hegu), LI11 (Quchi), ST36 (Zusanli), SP10 (Xuehai), and BL17 (Geshu) significantly improved the motor function of stroke patients with blood stasis syndrome ($p = 0.000$). This improvement is reflected by the increase in the Barthel Index mean score from 56.7 ± 8.2 before treatment to 78.9 ± 6.5 after treatment, as shown in Table 2.

Table 1. Characteristics of Participants

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	18	60
	Female	12	40
Age (years)	Mean \pm SD	56.4 ± 7.2	-

Table 1 shows that most participants were male (60%) and within the average age range of 56.4 ± 7.2 years, indicating that stroke commonly affects adults in mid-to-late age, consistent with the findings of Benjamin et al. (2019), which highlight that stroke prevalence increases significantly after the age of 50.

Table 2. Barthel Index Scores Before and After Acupuncture

Parameter	Mean Score	Standard Deviation
Before Treatment	20.00	25.831
After Treatment	69.17	16.561

The analysis of functional dependency categories revealed a substantial clinical improvement. Prior to the intervention, the majority of patients (60%, $n=18$) were in the total dependence category (Barthel score 0–20), with 33.3% ($n=10$) having severe dependence and 6.7% ($n=2$) having moderate dependence. After 8 sessions of acupuncture, the distribution shifted significantly: 60% ($n=18$) of patients improved to moderate dependence (score 61–90), 36.7% ($n=11$) reached mild dependence (score 91–99), and 3.3% ($n=1$) achieved complete independence (score 100). The difference in the Barthel Index score demonstrates a substantial improvement in daily living activity and independence levels. These findings confirm that acupuncture provides measurable benefits in restoring motor function. The positive outcomes can be attributed to both neurophysiological and energetic mechanisms described in modern and traditional frameworks.

The reduction in the standard deviation of Barthel Index scores, from 25.83 before treatment to 16.56 after treatment, indicates that the acupuncture intervention not only improved functional outcomes on average but also resulted in more consistent and homogeneous responses among the patients. This suggests a stabilizing effect on motor function recovery in post-stroke patients with blood stasis syndrome.

From a biomedical perspective, acupuncture induces local and systemic effects. Needling stimulates afferent nerve fibers, leading to activation of the somatosensory cortex and motor cortex through the spinal-thalamic pathway (Li et al., 2021). This process enhances cerebral blood flow, improves synaptic plasticity, and promotes axon sprouting in damaged brain regions (Liu et al., 2020). These effects are crucial for regaining muscle control and coordination in post-stroke recovery.

From the Traditional Chinese Medicine (TCM) perspective, stroke with blood stasis syndrome occurs due to obstruction of Qi and blood in the meridians. The selected acupuncture points each play specific therapeutic roles:

- LI4 (Hegu) and LI11 (Quchi) regulate Qi circulation and disperse stagnation, thereby alleviating paralysis and pain.
- ST36 (Zusanli) and SP10 (Xuehai) strengthen Qi and invigorate blood, which supports tissue repair and muscle strength.
- BL17 (Geshu) acts as the “Influential Point of Blood,” promoting smooth circulation and eliminating stasis that hinders recovery.

The synergistic interaction among these points supports both macro- and microcirculatory improvement, helping to restore normal neural signaling and muscle tone. The phenomenon can be described using the principle:

$$n=a+b$$

where n represents functional motor improvement, a denotes the enhancement of Qi and blood flow, and b represents the neurological reorganization stimulated by acupuncture. Together, these processes lead to overall motor function recovery.

Furthermore, the trend of improvement in Barthel Index scores indicates consistent responses among participants, suggesting that acupuncture’s effect is not random but physiologically based. The p -value of 0.000 ($p < 0.05$) statistically validates this hypothesis, confirming a true therapeutic effect rather than chance variation.

Similar outcomes were reported by Zhang et al. (2020), who found that patients receiving acupuncture at comparable points showed improved cerebral perfusion and faster motor recovery. Liu et al. (2020) also observed that acupuncture promotes angiogenesis and regulates neurotransmitter balance, particularly dopamine and serotonin, which play key roles in motor control.

These findings suggest that acupuncture’s mechanism involves dual modulation: the regulation of Qi and blood flow per TCM theory, and the activation of the central nervous system per modern neuroscience. The consistent trend across studies strengthens the scientific validity of acupuncture as a complementary approach in post-stroke rehabilitation.

In addition, the improvement in functional scores supports the hypothesis proposed in the introduction, which stated that the combination of LI4, LI11, ST36, SP10, and BL17 enhances motor function by harmonizing blood flow and improving neurovascular connectivity. Thus, the results not only confirm the hypothesis but also provide empirical evidence that this specific combination of acupuncture points can accelerate the recovery of physical independence in stroke patients.

CONCLUSION

Acupuncture using points LI4, LI11, ST36, SP10, and BL17 significantly improves motor function in stroke patients with blood stasis syndrome. It enhances circulation, reduces stasis, and supports neurorehabilitation. Therefore, this point combination can be recommended as an effective complementary therapy for post-stroke recovery.

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