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## EVALUATION OF EFFICIENCY OF ACCAPUNCTURE THERAPY IN PATIENTS WITH ISCHEMIC STROKE

**Tukhtaev Ilkhom Turakulovich**  
**Bukhara state medical Institute**

**Abstract.** The article highlights the efficacy of acupuncture therapy as a rehabilitation method used in ischemic stroke by examining 140 patients and compares the effectiveness of the results with the control group.

**Keywords:** ischemic stroke, acute malfunction of blood flow in the brain, acupuncture therapy

**Introduction.** Cerebrovascular disease has become one of the most serious medical and social problems in our state as well as around the world [1]. The disease's prevalence, high mortality and disability rates, the incapacity of many survivors to continue their occupations, and their loss of social status all contribute to the deterioration of the situation [2, 3].

Stroke occupies a unique position among cerebrovascular diseases. Stroke is a disease that impairs people's ability to work, results in long-term hospitalization, permanent disability in patients, a reduction in the quality of life in their families, and incurs considerable financial expenditures for the government [4].

After cardiovascular and oncological diseases, stroke is the third greatest cause of death, accounting for 14% of all deaths [5]. According to studies, the occurrence of stroke ranges from 164 to 261 per 100,000 people [6, 7], with a 35 percent death rate in the acute phase and 45-50 percent by the end of the first year [8].

In recent years, Uzbekistan has recorded around 48,000 acute brain strokes per year, with 22,000 of them requiring hospitalization. Mortality was 44.6 percent, disability was 42.2 percent, and just 10.2 percent of patients recovered their working abilities. Stroke occurs at a rate of 0.9 to 1.4 per 1,000 people in Uzbekistan (Majidov N.M. and others, 1998).

**The aim of the study:** To evaluate the efficacy of acupuncture therapy in patients with ischemic stroke in both early and late recovery, regardless of the pathogenesis of the disease.

### **Characteristics of research materials**

All participants of the study were treated in the neurology department of the Bukhara Regional Multidisciplinary Medical Center and were registered at the consulting clinic. A total of 140 patients took part in our research, with an average age of  $57.91 \pm 9.63$ . Patients ranged in age from 35 to 81 years old. With regard to the gender characteristics of the patients in the study, there were 98 women and 42 males in the group.

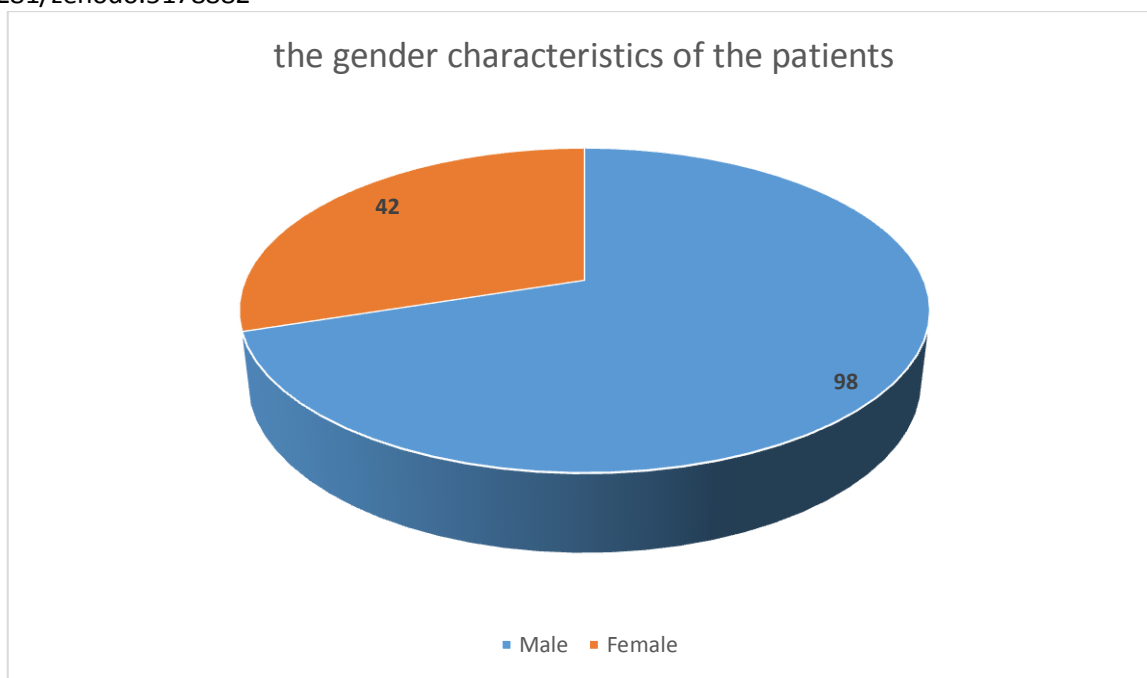


Figure 1  
 Gender characteristics of patients in the study group

The average age of female patients was  $59.5 \pm 1.05$ , while male patients' average age was  $57.2 \pm 0.9$ . It was expected that the arithmetic value of average age in men differed from the mean age in female patients, and that the smallness of the average standard deviation was due to a number of reasons, including the high percentage of detrimental factors in men.

When the groups were studied by age, it was discovered that cerebrovascular disorders were more common in male patients above the age of 70, whereas the prevalence of this age was higher in female patients around the same age. Table 1 and Figure 2 statistics show the age and gender analysis of the study group patients.

Groups by age	Male n=98		Female n=42	
	Abc	%	Abc	%
30-39	3	3,06		
40-49	16	16,3	6	14,2
50-59	8	8,2	6	14,2
60-69	20	20,4	11	26,2
70 -79	49	50	19	45,2
Over 80 years of age	2	2,04		

Male patients had a slightly earlier onset of the disease than female patients, with the group of male patients having the highest average age, 82 years. The earliest age of commencement of the disease in the female patient group was 40 years, and the highest age was 82 years. The disease was most common in the age group 70-79 years, ie in 50% of male patients, in 45% of female patients in this age group. The results obtained are shown in the form of a diagram in Figure 3.2.

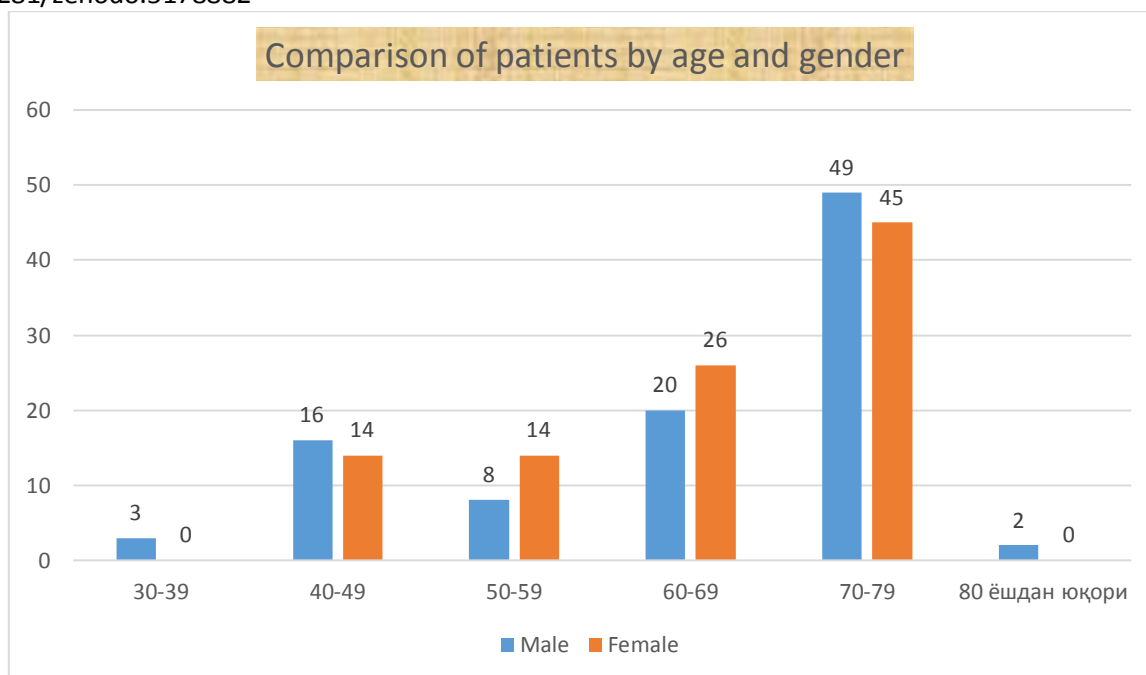


Figure 2  
Comparison of patients by age and gender

There were no female patients over the age of 80 and none under the age of 40 among our female patients.

Patients were separated into two groups to monitor the effectiveness of acupuncture therapy. Basic treatment and acupuncture therapy were utilized in the first group, while only basic treatment methods were used in the second.

The 1st group consisted of 100 patients.

The 2nd group consisted of 40 patients.

The primary group consisted of 70 male and 30 female patients, while the control group consisted of 28 male and 12 female patients. The average age of the patients did not differ sharply across groups.

In addition to the main treatment, participants received acupuncture therapy for ten days. After completing acupuncture therapy, patients were re-examined. While all of the patients complained of overall weakness, subjectively, feeling sick, panic and fear, low self-esteem, and regular bad mood were detected in nearly all of them - 90 %. A similar indicator, observation of weakness in the arms and legs, was observed in almost all patients. Dizziness was observed in 30% of patients.

The primary group, as well as the control group, had a variety of concomitant pathology. These co-morbidities were predicted to have a negative impact on the treatment process and recovery process of the underlying disease, as well as their impact on rehabilitation processes. In almost 100% of cases, atherosclerotic damage to the coronary, cerebral, and peripheral arteries was observed to be the main cause of ischemic stroke. In our follow-up, we found hypertension in all of the patients. While atrial fibrillation was found in 50% of the patients, all of them had a history of ischemic heart disease. Among the chronic diseases, chronic pyelonephritis was observed in 50% of our patients, while chronic bronchitis was observed in 50% of patients. The occurrence dynamics of chronic co-morbidities are given in Table 3.2.

Table 2

Occurrence of concomitant pathology in patients of the primary and control groups

	Primary group n=100		Control group n=40	
	abc	%	abc	%
Ischemic heart disease	100	100***	40	100***
Anamnesis myocardial heart attack	50	50**	20	50**
Rhythmic arrhythmia	50	50**	20	50**
Hypertension	100	100***	40	100***
Diabetes mellitus	60	60**	24	54**
Chronic pyelonephritis	50	50**	19	48*
Chronic bronchitis	50	50*	21	52**
Chronic cholecystitis	80	80**	30	75**
Duodenal intestine ulcer disease	10	10*	6	15*
Chronic gastritis	7	7	2	5

**Note.** \* reliable difference (\*–  $p < 0,05$ ; \*\* –  $p < 0,01$ ; \*\*\* –  $p < 0,001$ ).

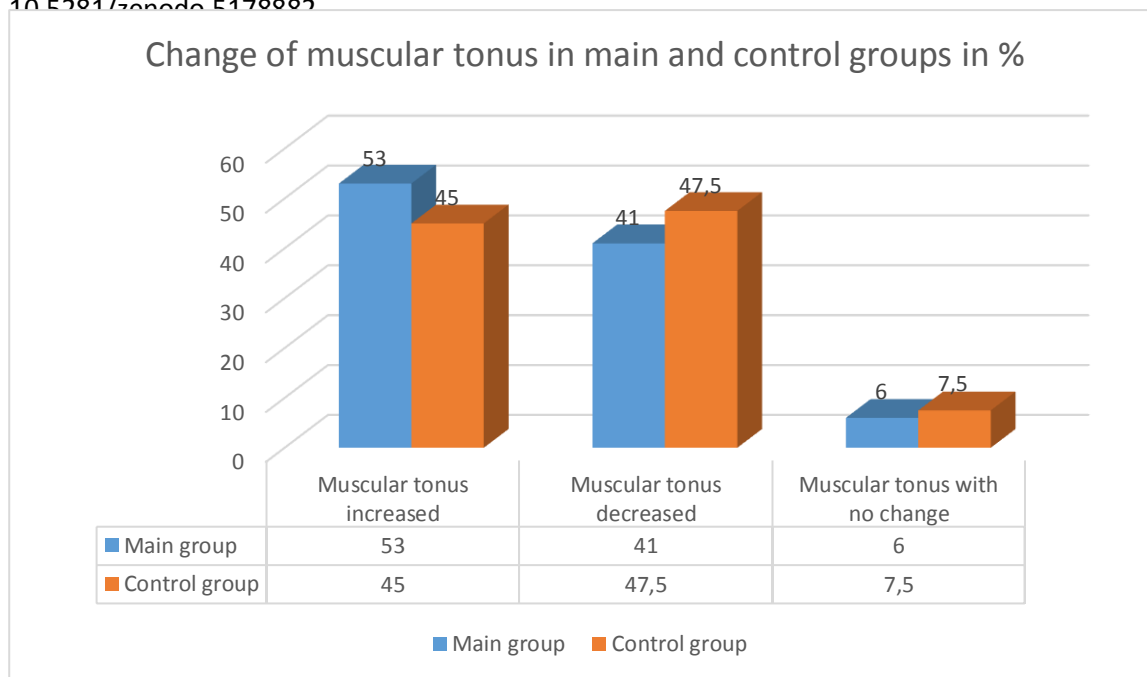
In addition to the diseases listed in the table, deformed osteoarthritis was detected in patients of the primary and control groups, the frequency of its occurrence was observed in 12 patients in the primary group and 4 patients in the control group. Besides, sleep disorders of different stages were detected in 60 patients in the primary group ( $p < 0.01$ ) and in 28 patients ( $p < 0.01$ ) in the control group.

The incidence of paresis in the primary and control groups was compared. The dynamics of the occurrence were analyzed. The comparison of paresis is presented in Table 3 data.

Table 3

Observation dynamics of paresis in patients of the primary and control groups

	plegia		2 points		3 points		4 points		Reflector	
	Abc	%	abc	%	abc	%	abc	%	Abc	%
Primary group n=100	1	1	15	15*	32	32**	32	32**	20	20*
Control group	0	0	5	12.5*	12	30**	12	30**	11	27.5**



n=40

**Note.** \* reliable difference (\*– p<0,05; \*\* – p<0,01; \*\*\* – p<0,001).

One patient in the primary group showed a 0-point gain in muscle strength, while no patients with plegia were found in the control group. Paresis with a decrease in muscle strength of up to 2 points was observed in 15% of cases in the primary group and 12.5% of cases in the control group, with a reliable difference of p <0.01 in both groups. Paresis of 3-4 points was observed in 32% of cases in the primary group, in 30% of cases in the control group p <0.01. Reflex-type muscle strength was found in more percentages in the control group than in the primary group. In the same order were studied in the paresis of the arm and leg in both groups.

Table 4

Changes in muscular tonus in primary and control group patients

	Muscle tension increased	Muscle tension decreased	Muscle tension with no change
Primary group n=100	53**	41*	6
Control group n=40	18	19*	3

**Note.** \* reliable difference (\*– p<0,05; \*\* – p<0,01; \*\*\* – p<0,001).

An increase in muscular tonus was reported in 53% p <0.01 patients in the primary group, and an increase in muscular tonus was predominant in the control group patients with 47.5% p <0.05. Figure 4 depicts a percentage diagram of the acquired results.

Patients with no change in muscular tonus accounted for 6% in the primary group and 7.5% in the control group.

Speech disorders were studied in both groups of patients in our study, and the most common speech abnormalities in our follow-up were sensomotor aphasia, dysarthria, and mixed-type speech disorders. Table 5 shows a breakdown of the speech problems that have been observed in patients.

Table 5

The most common observed speech disorders in the primary and control group

Speech disorders Groups	sensomotor aphasia		dysarthria		mixed type speech disorders	
	abc	%	Aбс	%	Aбс	%
Primary group n=100	45	45	46	46*	9	9
Control group n=40	13	32,5*	25	62,5**	2	5

**Note.** \* reliable difference (\* –  $p < 0,05$ ; \*\* –  $p < 0,01$ ; \*\*\* –  $p < 0,001$ ).

Dysarthria was found to be the most common speech disorder in both the primary and control groups, with 46 percent and 62.5 percent, respectively. Mixed-type speech disorders were discovered to be the least common speech abnormalities in both groups.

Monitoring the effectiveness of acupuncture therapy in patients.

In addition to the standard acupuncture treatment, patients received 10 treatments over the course of 10 days. Patients in both groups were re-evaluated at the end of the treatment, and the outcomes were compared. Before and after therapy, the incidence of paresis and plegia in patients, as well as changes in muscle strength, were compared in the primary and control groups. On the basis of both groups, the results are reported in Table 6.

Table 6

Dynamics of observation of paresis before and after treatment in patients of the primary and control groups

Muscle power Groups		плегия		2 points		3 points		4 points		Reflector	
		Abc	%	abc	%	abc	%	Abc	%	Abc	%
Primary group n=100	Before treatment	1	1	15	15	32	32	32	32	20	20

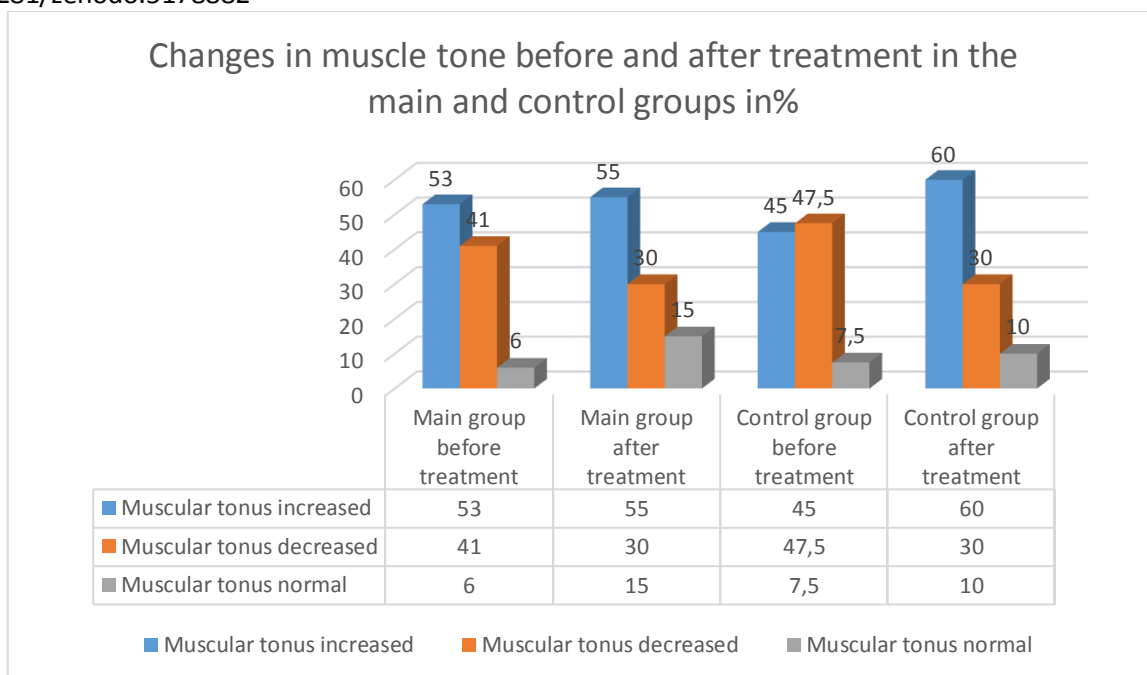


	After treatment	0	0	10	10	25	25*	38	38**	27	27*
Control group n=40	Before treatment	0	0	5	12.5	12	30	12	30	11	27.5
	After treatment	0	0	4	10	15	37.5*	10	25	11	27.5

**Note.** \* reliable difference (\* –  $p < 0,05$ ; \*\* –  $p < 0,01$ ; \*\*\* –  $p < 0,001$ ).

The dynamics of changes in muscle strength in both groups were studied; one patient in the primary group had plegia before treatment, but his muscle strength improved after treatment; 2-point muscular strength was observed in 15% of patients before treatment and 10% of patients after treatment, whereas 3-point muscle strength was observed in 32% of patients in the primary group before treatment and 25% of patients after treatment. It was observed in 30 patients in the control group before therapy, and it increased to 37.5 percent in patients in this group after treatment. While patients with a 4-point muscle strength were 32% in the primary group before treatment, 4% had muscle strength after treatment in 38% of patients in this group, in the control group, 4% muscle strength was detected in 25% of patients after treatment, compared to 30% before treatment. Reflex muscle strength was observed in 20% of patients before treatment in our primary group of patients, while reflex-type muscle strength was detected in 27% of our patients after treatment, while the number of patients with reflex muscle strength remained unchanged in the control group.

Before and after therapy, patients' muscle tone was assessed, and the findings were compared in both groups. Figure 3 depicts the obtained results in the form of a diagram.



Patients with increased muscular tone made up 53 percent of the baseline group before treatment and 55 percent after treatment, compared to 60 percent after treatment in the control group, compared to 45 percent at the start. Reduced muscle tone was noted in 41% of the primary group before treatment, 30% after treatment, and 47.5 percent of the control group before treatment and 30% after treatment. Patients with no change in muscle tone in the primary group accounted for 6% before treatment, 15% after treatment, and patients with no change in muscle tone in the control group accounted for 7.5 percent before treatment, and 10% after treatment. Positive changes in muscle tone were more pronounced in the baseline group than in the control group when changes in muscle tone were measured.

After therapy, observations of speech disorders in both groups were re-evaluated. In both pre- and post-treatment cases, the results were compared. The outcomes of the two groups were compared and contrasted. Table 3.8 shows observations of pre- and post-treatment speech disorders.

Table 8

**Observation of the most common speech disorders  
in the primary and control groups**

Speech disorders		sensomotor aphasia		dysarthria		Mixed-type speech disorders		No speech disorders	
		abc	%	abc	%	abc	%	abc	%
Primary group n=100	before	45	45	46	46	9	9		
	after	38	38	39	39*	3	3	20	20**

Control group n=40	before	13	32,5	25	62,5	2	5		
	after	12	30	23	57,5	1	2,5	4	10

**Note.** \* reliable difference (\*-  $p < 0,05$ ; \*\* -  $p < 0,01$ ; \*\*\* -  $p < 0,001$ ).

The incidence of sensorimotor aphasia decreased by 7% in the primary group, 2.5 percent in the control group, and 7% in dysarthria in the primary group after treatment; decreased by 5% in the control group after treatment, mixed-type speech impairments decreased by 6% in the primary group after treatment, and 2.5 percent in the control group after treatment. Speech disorders were not observed in 20% of patients in the primary group after treatment, and no speech disorders were observed in 10% of patients in the control group.

**Conclusion:** The use of acupuncture therapy in the complex treatment of patients with ischemic stroke can minimize the time it takes for the neurological defect to heal, raise the strength of paretic limbs, reduce inpatient duration, and improve the quality of life of patients with ischemic stroke. When data on the dynamics of movement disorders obtained during the combined use of basic therapy and acupuncture therapy in the primary and control groups were compared, reliable results were obtained - acupuncture therapy in patients ( $0.01 < P < 0.05$ ) is highly effective in restoring strength in paretic limbs.

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