

COMPARATIVE ANALYSIS OF CLINICAL-NEUROLOGICAL AND ANGIOLOGICAL DOPPLER ULTRASONOGRAPHY PARAMETERS IN ATHEROTHROMBOTIC AND HEMORHEOLOGICAL ISCHEMIC STROKE

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Annotation: This thesis explores the two main clinical variants of ischemic stroke – atherothrombotic and hemorheological forms. The research findings demonstrate that identifying the specific features of these stroke types plays a crucial role in early diagnosis and the selection of effective treatment strategies.

Keywords: ischemic stroke, atherothrombotic stroke, hemorheological stroke, ultrasound diagnostics, clinical features, neurological syndrome, blood rheology, vascular stenosis.

Research Objective: To evaluate the severity, progression dynamics, and prognosis of stroke based on a comparative analysis of the clinical-neurological features and ultrasound vascular examination (USVE) angiological indicators of atherothrombotic and hemorheological types of ischemic stroke.

Materials and Methods

The study included 60 patients diagnosed with ischemic stroke, divided into two groups:

- **Group I:** 30 patients diagnosed with atherothrombotic stroke. Doppler ultrasound examination revealed atherosclerotic plaques and 50–70% stenosis in the carotid and vertebral arteries.
- **Group II:** 30 patients treated for hemorheological stroke. This group had elevated hematocrit levels, increased blood viscosity, and Doppler ultrasound results within normal limits.

Methods Used in the Study:

- Clinical-neurological assessment (based on the NIHSS scale)
- Doppler ultrasound of the carotid/vertebral arteries
- Blood rheology parameters (hematocrit, fibrinogen, blood viscosity)
- MRI/CT diagnostics (in necessary cases)

Results

Clinical analysis showed that:

- In **Group I** (atherothrombotic stroke), the average patient age was 66.3 ± 2.1 years. Among them, 60% were male (n=18), and 40% were female (n=12). The mean NIHSS score was 22.6 ± 6.4 . Doppler ultrasound revealed plaques, turbulent blood flow, and thickening of the intima-media in the carotid arteries. The mortality rate was 13.3% (n=4), disability occurred in 50% (n=15), and full recovery in 36.7% (n=11) of patients.
- In **Group II** (hemorheological stroke), the average patient age was 62.4 ± 2.8 years; 63.3% were male (n=19) and 36.7% female (n=11). The mean NIHSS score was 15.4 ± 7.1 . No significant changes were detected via Doppler ultrasound. Blood viscosity and fibrinogen levels were markedly

elevated. There were no deaths, the disability rate was 23.3% (n=7), and full recovery was recorded in 76.7% (n=23) of patients.

Conclusion:

The study results indicate that in atherothrombotic stroke, the presence of stenosis and plaques detected via Doppler ultrasound is associated with more severe clinical progression. Patients in this group had higher NIHSS scores, with more frequent cases of mortality and disability. In contrast, hemorheological stroke is primarily driven by impaired blood rheology, leading to a milder clinical course and higher recovery rates. Thus, early identification of stroke etiology, accurate differential diagnosis, and an individualized treatment approach can significantly improve patient outcomes.

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