NEUROLOGICAL DEFICIT DYNAMICS IN ISCHEMIC STROKES FOLLOWING ENDOVASCULAR THROMBOEXTRACTION

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Abstract: The study analyzes the clinical dynamics of neurological deficits in patients with ischemic stroke following endovascular thromboextraction. A total of 140 patients aged 41–79 years with ischemic stroke in the carotid and vertebrobasilar systems were examined between 2022 and 2024 at the Neurology Department of the Republican Scientific Center for Emergency Medical Care. The patients were divided into two equal groups: the main group (70 patients) underwent emergency X-ray endovascular thromboaspiration, while the comparison group (70 patients) received standard therapy without thromboextraction. The neurological status was assessed using the NIHSS scale, and functional outcomes were evaluated using the modified Rankin Scale. Results demonstrated a statistically significant improvement in neurological and functional recovery in the main group. The Rankin Scale scores decreased from 4.6 ± 0.7 to 1.9 ± 0.3, while in the comparison group—from 4.8 ± 0.4 to 4.2 ± 0.7. Similarly, NIHSS scores in the main group improved from 22.17 to 6.47 ($p < 0.005$), indicating a marked reduction in neurological deficit, whereas changes in the comparison group were less pronounced (from 23.47 to 18.61). The findings confirm that emergency X-ray endovascular thromboaspiration ensures faster and more complete recovery of neurological function in ischemic stroke patients, reducing the degree of post-stroke disability.

Keywords: ischemic stroke, endovascular thromboextraction, mechanical thrombectomy, neurological deficit, NIHSS, Rankin Scale, thromboaspiration, neurorehabilitation.

Relevance. Endovascular contact (aspiration) thromboextraction and mechanical thrombectomy (MTE) are modern methods of treating ischemic stroke, promoting rapid patient recovery and reducing the risk of adverse outcomes (1,2).

Materials and methods of the study. The studies were conducted at the Neurology Department of the Russian Scientific Center for Emergency Medical Care

from 2022 to 2024. A total of 140 people aged 41 to 79 years were examined in the hyperacute and acute periods of ischemic stroke (IS) in the carotid and vertebrobasilar systems. The subjects were divided into the following groups. The main group (MG) consisted of 70 (50.0%) patients with IS (cardioembolic and atherothrombotic variants) with emergency X-ray endovascular thromboaspiration (ERECT), the average age was 64.9 ± 8.1 years. The comparison group (CG) included 70 (50.0%) patients with IS without emergency X-ray endovascular thromboaspiration, the average age was 66.8 ± 8.2.

To objectively assess the severity of the condition, the extent of focal neurological deficit, and the dynamics of clinical indicators, the National Institutes of Health Stroke Scale (NIHSS) was used. The degree of functional recovery was assessed using the modified Rankin Scale. Statistical processing of the obtained data was performed on a personal computer using Statistica 8.0. The Student's t-test was considered significant at $p < 0.05$.

Study results. Over 7 days of treatment, patients with ischemic stroke showed different dynamics depending on the use of NRETA. The Rankin Scale scores in the MG and CG were initially high at -4.6±0.7 and 4.8±0.4 points, respectively. During treatment, these scores significantly decreased to 1.9±0.3 and 4.2±0.7, respectively. The NIHSS scores, used to determine the level of neurological deficit in the MG and CG, were initially 22.17 and 23.47 points, respectively. NIHSS scores improved dynamically during treatment, with particularly significant changes in the MG ($p<0.005$) and non-significant changes in the CG at 6.47 and 18.61 points, respectively. Thus, it can be concluded that against the background of emergency X-ray endovascular thromboaspiration in patients with ischemic stroke, the recovery of neurological deficit is significantly better.

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