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Comparative Characteristics of Standard and Combined Therapy (With Using Human Urinary Callidinogenase) in Patients with Cerebral Infarction

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Abstract: *Acute brain infarction (ABI) is caused by a sharp decrease in blood and oxygen supply [3.6]. Stroke is one of the main health problems of the adult population and ranks third among the causes of death in developed countries. [1.10] 31% of stroke patients require external assistance to care for themselves, and 20% cannot walk independently. Only about 20% of patients can return to their old jobs. Stroke places special obligations on the patient's family members and places a heavy social and economic burden on society.*
Ischemic stroke is caused by hypertension, diabetes, heart disease, age, heredity, and other risk factors.[2] This leads to stenosis and occlusion of the brain vessels, as well as to decrease or disruption of the blood supply to the brain's nerve cells; thus, hypoxic-ischemic necrosis occurs. Inflammation in the early stages after cerebral infarction is one of the important mechanisms of neural damage in the areas of infarction and semi-shadow [1,3].
KLK is a group of serine proteases present in most tissues and fluids of the body, including plasma calcreine (PK) and tissue calcreine (TK). Tissue calcreine is found in the tissues of the lungs, kidneys, blood vessels, brain and adrenal glands and plays a key role in the regulation of blood microcirculation, blood pressure and blood flow; it is a necessary component for maintaining homeostasis and a factor of disease response, and also responsible for the production of kinins (bradykinin and callidin), which contribute to local vascularization and prolonged vascularization, as well as specifically enhance blood flow in vascular tissues by increasing the level.
Human urinary kallidinogenase - is a selective cerebrovascular dilator which relaxes blood vessels and improves the aerobic level of brain tissue. Edaravon in combination with urinary kallidinogenase affects many stages of ischemic stroke. Combined therapy of ischemic stroke in the acute period demonstrates a significant improvement in neurological status and contributes to a dosed reduction and stabilization of blood pressure compared to standard therapy.
Key words: *total peripheral vascular resistance, blood pressure, average blood pressure, cerebral infarction, tissue callicrein, human urine callidinogenesis.*

Introduction

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Research and methods.

To visually compare the key results of the studied indicators by groups, we used the following format.

Comparison of hemodynamic parameters by groups

Indicators	Standard therapy (n=62)	Combined therapy (n=66)
BP systolic, mm Hg		
Upon admission	160,8 ± 6.8	164.4 ± 5.8
- day 3	163.5 ± 5.3	144.7 ± 2.6*
- day 5	154.0 ± 3.7	140.3 ± 3.0*
- day 7	149.4 ±3.0	139.6 ± 2.7*
- day 10	142.4 ± 3.1	141.1 ± 2.4
Average BP, mm Hg		
Upon admission	108.8 ± 4.4	114.3 ± 6.5
- day 3	110.7 ±4.3	104.0 ± 3.7
- day 5	105.8 ± 3.0	101.7 ± 2.8
- day 7	103.5 ± 3.5	99.6 ± 2.2
- day 10	101.4 ± 2.4	99.7 ± 2.1
Heart rate, min		
Upon admission	85.7 ± 5.4	83.5 ± 3.1
- day 3	87.7 ± 3.3	80.1 ± 1.9*
- day 5	86.3 ± 2.9	77.4 ± 3.0*

Indicators	Standard therapy (n=62)	Combined therapy (n=66)
- day 7	82.1 ± 3.0	74.9 ± 2.7*
- day 10	81.3 ± 2.2	76.3 ± 2.3
total peripheral vascular resistance dina/sec/cm-5		
Upon admission	1554.2 ± 33.6	1725.2 ± 29.2*
- day 3	1591.2 ± 19.4	1600.1 ± 17.7
- day 5	1546.1 ± 20.3	1535.1 ± 19.3
- day 7	1494.0 ± 21.3	1532.3 ± 18.4
- day 10	1448.5 ± 20.7	1484.9 ± 16.3
Impact index, ml/m2		
Upon admission	36,5 ± 1.3	35.3 ± 2.2
- day 3	34.4 ± 1.3	36.8 ± 1.4
- day 5	35.8 ± 1.1	39.5 ± 1.3*
- day 7	37.6 ± 1.3	38.3 ± 1.6
- day 10	37.9 ± 1.5	39.4 ± 1.3
Heart rate, l/min/m2		
Upon admission	3,12 ± 0.19	2.95 ± 0.15
- day 3	3.01 ± 0.08	2.94 ± 0.06
- day 5	3.09 ± 0.07	3.05 ± 0.09
- day 7	3.08 ± 0.08	2.87 ± 0.11
- day 10	3.08 ± 0.04	3.00 ± 0.07

Results and discussion.

The combined therapy group showed a dosage reduction and stabilization of blood pressure and heart rate from the first days of the study, which was reflected in the indicators of TPVR, average BP and led to a statistically significant increase in heart rate on the 5th day. As for the HI indicator, it was at a satisfactory level and did not differ from the control group, but in the absence of tachycardia. All of this undoubtedly

contributes to better perfusion of brain tissue.When evaluating the effectiveness of combined therapy with callidinogenaze and edavan, we observed a clear trend towards a decrease in the volume of the infarction site, although no statistically significant differences were achieved. This may indicate the potential benefit of this therapy and requires further research with a large sample to confirm the obtained results.Analyzing the dynamics of changes in the studied indicators during standard therapy in combination with kallidinogenase (kalgen) and edarvon in patients with ischemic stroke in the acute period of the main group, we concluded that it demonstrates a significant improvement in clinical, laboratory, and instrumental data compared to standard therapy. Our study showed that this combination improves neurological functions faster (from 3 days) and more effectively, reduces the severity of the course, the volume of infarction, reduces the risk of immediate and long-term complications, contributing to early (4-6 days) verticalization of patients.Kallidinogenase, improving microcirculation and edaravon, due to its antioxidant properties, seems to create a synergistic effect, which leads to faster recovery and a better prognosis for patients in the acute period of stroke.

Conclusion.

Combined therapy contributed to a dosage reduction and stabilization of blood pressure and a decrease in heart rate from the first days of the study, which was reflected in the indicators of TPVR, average BP and led to a statistically significant increase in one-time heart rate on the 5th day (by 8.8%). The HI was at a satisfactory level (2.95-3.05 l/min/m2) and did not differ from the control group, but in the absence of tachycardia. All of this undoubtedly contributes to better perfusion of brain tissue.

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