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SPECIFICITY OF BLOOD CLOTTING PARAMETERS IN HEMORRHAGIC STROKE

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Abstract: The article describes the specificity of blood clotting parameters such as hematocrit number, thrombin time, fibrinogen, standard test, thrombotest in hemorrhagic stroke, and these values depend on various co-morbid conditions and age and sex of patients. Hemorrhagic stroke is becoming more prevalent and is one of the most pressing medical and social problems. Cardiovascular and endocrine diseases are in creasing the incidence of hemorrhagic stroke as a background, and the effects on the vascular walls as well as the rheological properties of the blood are known. As a result, patients have varying degrees of neurological disorders and premature death.

Keywords: hemorrhagic stroke, coagulogram, fibrinogen, thrombotest, hematocrit, diabetes mellitus, arterial hypertension, atherosclerosis.

Relevance of the problem

An acute disturbance of blood circulation in the brain is called a stroke. Ischemic, hemorrhagic and mixed strokes are distinguished. Ischemic stroke is a clinical syndrome caused by a sudden decrease or stoppage of blood circulation in a certain part of the brain, the symptoms of which appear more than 24 hours [1,2].

Hemorrhagic stroke occurs due to the rupture of pathologically changed blood vessels or leakage of blood from the fragile vessel wall into the brain tissue (perdiapedesis) [1,2].

Depending on the localization of the stroke, patients experience various movement and mental disorders. Most patients have speech (aphasia, dysarthria), writing (agraphia), reading (alexia), calculation (acalculia), thinking, movement (paresis, apraxia), perception (agnosia), attention and emotional (depression, apathy) disorders. [6].

Diabetes-stroke increases the probability of development by 3-4 times and worsens the consequences [3]. Hypertension plays a key role in the development of cerebral and large blood vessel atherosclerosis. Diabetes mellitus, cerebral micro- and macroangiopathies, dysmetabolic syndrome, frequent hypo- and hyperglycemic changes in the blood, as well as arterial hypertension, aneurysms sharply increase the risk of hemorrhagic stroke.

It is known that hemorrhagic stroke is rare compared to other strokes, but it is a disease with a high rate of disability, a sharp decrease in life activity, and a high mortality rate, and it is often observed in middle-aged people [7]. Although neuroimaging and blood biochemical analysis are sufficient for the diagnosis of hemorrhagic stroke, it has been proven during our research that the acute, acute, early and late recovery period, prognosis, and mortality of hemorrhagic stroke are worse in patients with type 2 diabetes.

The purpose of the study

To study the specificity of blood coagulation system indicators in hemorrhagic stroke observed in patients with various co-morbid backgrounds. Study of the correlation

between the results of thrombotest, fibrinogen, hematocrit and Rankin, Skandinavian scales.

Research material and methods

In 2020-2021, 55 patients treated with hemorrhagic stroke in intensive neurology, somatoneurology and therapeutic resuscitation departments of multidisciplinary clinic of Tashkent Medical Academy were taken as research material. 34 patients with hemorrhagic stroke formed on the basis of hypertension and atherosclerosis formed group I, 17 patients with hemorrhagic stroke developed on the basis of hypertension and diabetes mellitus type 2 formed group II, and group III consisted of hemorrhagic stroke and cerebral blood vessel anomalies. (arterio-venous malformation, aneurysm) formed 4 patients.

In these patients, the clinical course of the disease, the results of cerebral MSCT, MRT and MRA instrumental examination, as well as coagulogram parameters, ie hematocrit number, thrombin time, fibrinogen, standard test, thrombotest were analyzed. Also, the level of stroke severity in groups I and II was used to assess with the Skandinavian scale, and the severity of patients with the Rankin scale. Correlation between fibrinogen and Rankin scale, hematocrit and Skandinavskaya scale values was analyzed. The correlation strength of the Rankin and Skandinavian scales was analyzed.

Discussion and results

44.1% (n=15) were women and 55.9% (n=19) were men among the 34 patients in group I, and the age of the patients in this group was conditionally divided into 4 levels, that is, the number of patients under 40 years old is 2 (5.9%), patients aged 40-50 are 6 (17.6%), patients aged 50-60 are 10 (29.4%), and those over 60 are 16 people (was 47.1%). Among the 17 patients in the II group, 23.5% (n=4) were women and 76.5% (n=9) were men. Among these patients, 40-50 years old made up 1 person (5.9%), 50-60 years old - 7 people (41.2%), and patients over 60 years old - 9 people (52.9%) (Table 1) .

Table 1

Distribution of patients by gender and age

Groups	Gender	Age				Total
		Under 40 years old	40-50 years old	50-60 years old	Over 60 years old	
Group I	Woman	2	0	3	10	15
	Man	0	6	7	6	19
Group II	Woman	0	0	0	4	4
	Man	0	1	7	5	13
Group III	Woman	3	0	0	0	3
	Man	1	0	0	0	1
Women		5	0	3	14	22
Men		1	7	14	11	33

All 4 patients in group III were younger than 40 years old, their average age was 29±1.7, and 3 were female (75.0%), and 1 (25.0%) was male.

When analyzing the clinical course of hemorrhagic stroke in patients of group I, parenchymal type 79.4% (n=27), parenchymal-ventricular type 5.9% (n=2), subarachnoid type 2.9% (n=1), ventricular type 2.9% (n=1), subarachnoid-parenchymal type in 2.9% (n=1) and subarachnoid-ventricular type in 5.9% (n=2) patients. Patients with hemorrhagic stroke of the II group had parenchymal type 47.1% (n=8), parenchymal-ventricular type 41.2% (n=7), subarachnoid-parenchymal type and subarachnoid-parenchymal-ventricular type from 5.9% (n=1) constituted the patient. In group III, only two types of hemorrhagic stroke, i.e., parenchymal type in 75.0% (n=3) and subarachnoid type in 25.0% (n=1) patients were identified (diagrams 1, 2, 3).

Diagram 1

Structure of hemorrhagic stroke among patients with co-morbid hypertension and cerebral atherosclerosis

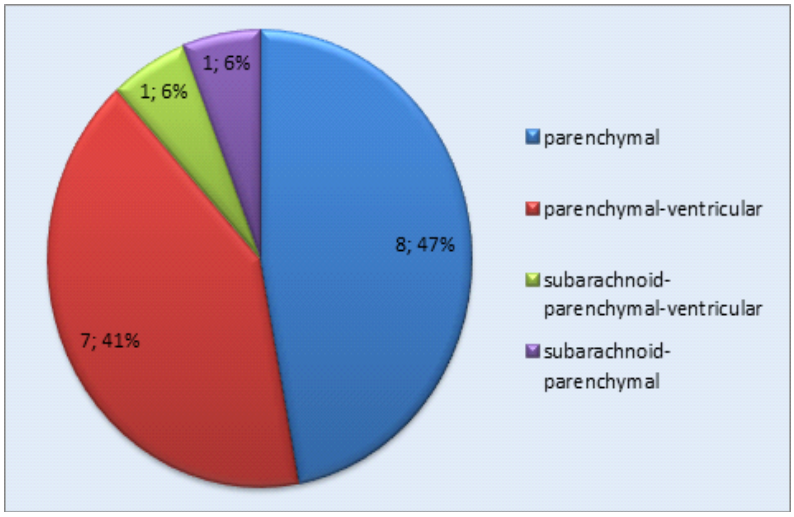
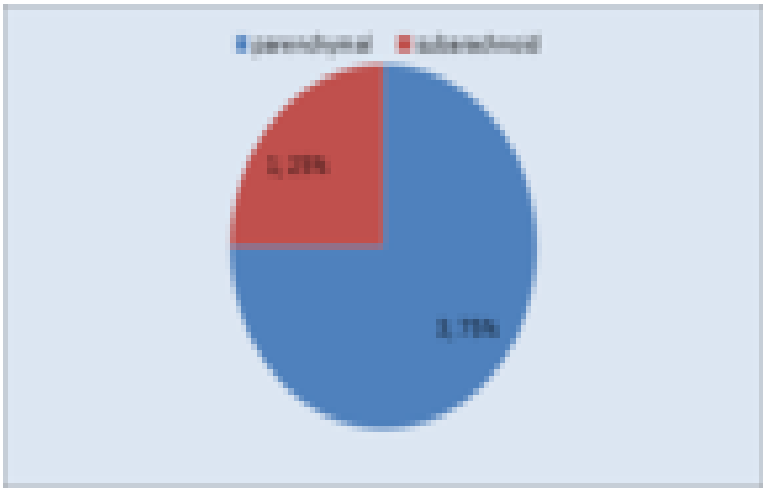


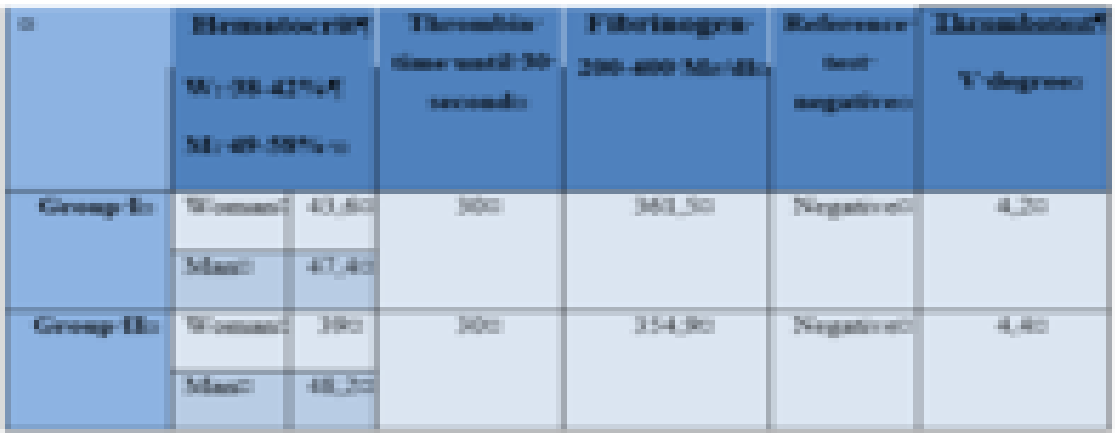
Diagram 3

Structure of hemorrhagic stroke in patients with other etiologies



Analyzing the coagulogram parameters of the patients in group I, the hematocrit index was on average 43.6% among women and 47.4% among men, and the hematocrit indicator of patients in group II was on average 39.0% among women and 48.2% among men. And when the coagulogram parameters of patients in group III were analyzed, the hematocrit index was on average 41.3% among women and 56.0% among men (Table 2).

Table 2
Coagulogram indicators in intergroup patients



Thrombin time values were equal to 30 seconds in all 55 patients, and the reference test was "negative" in all patients.

In patients with hemorrhagic stroke with co-morbid hypertension and atherosclerosis, the average fibrinogen indicator was 361.5 Mr/dl, in patients with hemorrhagic stroke formed on the basis of hypertension and diabetes, it was 354.9 Mr/dl, with advanced hemorrhagic stroke due to arteriovenous malformation and aneurysm and in sick patients it was 394.0 Mr/dl. According to the results of the examination, the level of thrombotest was equal to level V in almost all patients, the average level was 4.2 in group I, and 4.4 and 4.5 in groups II and III, respectively.

When the severity of patient in 34 patients of group I was evaluated according to the Rankin scale, the average value of the Rankin scale was 3.4±0.10, and the average value of the Skandinavian scale, which assesses the level of stroke severity, was 37.6±1.03. The average value of the Rankin scale for 17 patients of the II group evaluated by the same two scales was 3.8±0.15, and the average value of the Skandinavian scale was 28.1±2.22. When conducting a correlation analysis between the results of fibrinogen analysis and the results of the Rankin scale of patients in group I, the strength of the correlation bond is inverse weak bond (r=0.-14), and in group II the strength of correlation bond is inverse weak bond (r=-0.19) was found to be. The strength of the correlation between the Skandinavian scale and hematocrit values was equal to an average inverse relationship (r=-0.37) in group I, and a weak inverse relationship (r=-0.15) in group II. The correlation between the values of the Rankin and Skandinavian scales of the patients in the I and II groups was equal to the inverse strong correlation in both groups, and the correlation coefficient was r=-0.88 in the I group, and r=-0.91 in the II group, respectively. (Charts 4, 5)

Chart 4

Correlation of blood clotting indicators, Rankin, Scandinavian scales of patients in group I

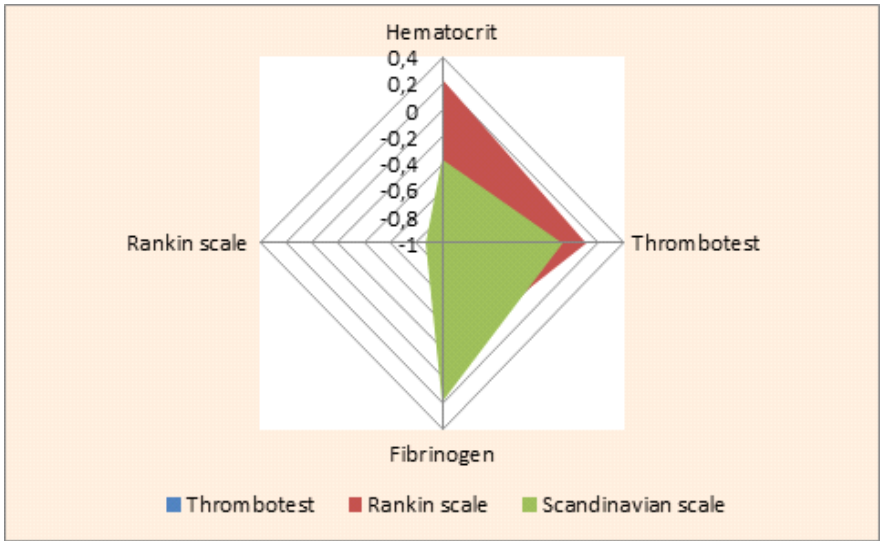
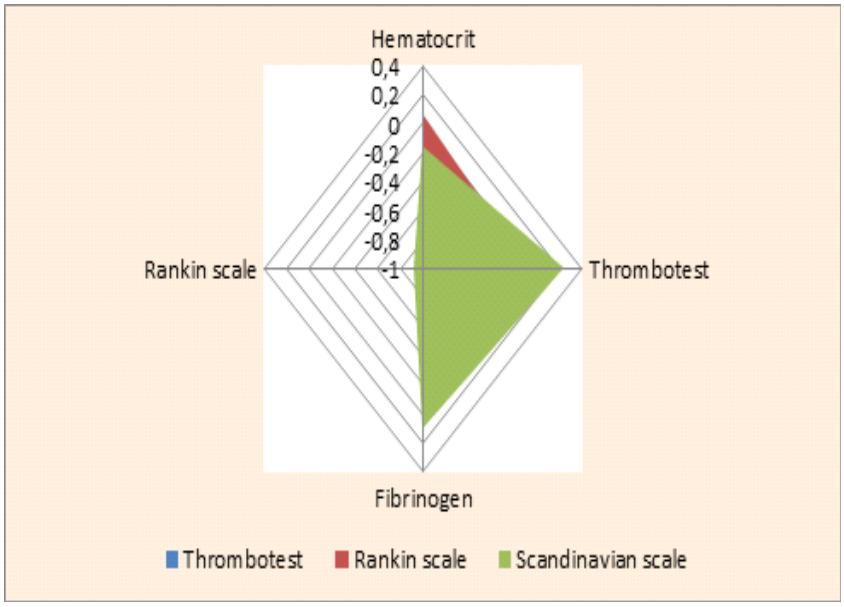


Chart 5

Correlation of blood clotting indicators, Rankin, Scandinavian scales of patients in group II



In the early recovery period of hemorrhagic stroke, deaths due to brain edema were observed in 5 (9.1%) patients, this indicator was 5.9% in group I and 17.6% in group II. No deaths were recorded in group III.

It has been found in other studies that fibrinogen measurement during the acute and subacute phases of stroke can help to predict the severity of stroke and to choose the right treatment [13,14,15]. In the acute period of stroke, using the Rankin and Scandinavian scales showed that the patient's condition corresponds to the severity of the disease.

Conclusion

1.When the clinical course of patients with hemorrhagic stroke in groups was loaded, the tip of the intraparenchymal type prevailed in all patients (69.1%).However, mixed

and severe types of hemorrhagic stroke, namely parenchymal-ventricular, subarachnoid-parenchymal-ventricular types, made up a larger share (52.9%) in patients of the II group.

2.According to the results of the study, the specificity of the standard test and thrombin time indicators did not differ in patients with different co-morbid background diseases in the three groups.

3.According to the results of the analysis, fibrinogen and thrombotest indicators were found to be slightly higher in group III patients, that is, hemorrhagic stroke developed against the background of cerebral vascular anomalies (arterio-venous malformation, aneurysm), than in the rest of group I and II patients. It can be explained by the fact that patients suffering from hypertension, atherosclerosis and diabetes mellitus have been taking various antiplatelet agents until they suffer from hemorrhagic stroke.Group III patients were young and did not receive antiaggregant, anticoagulant therapy in the pre-stroke period. Also, the number of patients in this group is insufficient for statistical calculations.

4.In the correlation analysis of hematocrit and fibrinogen indicators with neurological scale in the acute period of hemorrhagic stroke, it was found that hematocrit indicators have a moderate inverse relationship with the Scandinavian scale, a weak inverse relationship with the Rankin scale.In the acute period of hemorrhagic stroke, the use of the Scandinavian and Rankin scales is of great importance in the correct assessment of the patient's condition, the actual evaluation of the effictiveness of treatment measures, and the prediction of the level of disability.

Used literature

1.Rakhimbaeva G.S., Muratov F.Kh., Yakubova M.M., Neurology, pp. 106-115, Tashkent, 2020.

2.Ibodullaev Z.R., Nervous diseases, pp. 75-87, Science and technology, Tashkent, 2013.

3.Hemorrhagic stroke in type 2 diabetes mellitus, A. I. Ermolaeva. 2009.

4.Acute disorders of cerebral circulation in type II diabetes mellitus, A. I. Ermolaeva, Bulletin of new medical technologies 14 (3), 132-135, Russia, 2007.

5.A method for predicting the course of hemorrhagic stroke, Anti pinaYu.V., Gerasimova M. M., Russia, 2002.

6.Diabetes mellitus and endothelial dysfunction, I. R. Yarek-Matynova, M. V. Shestakova, Diabetes Mellitus, 48-52, Moscow, 2004.

7.Diabetic complications. Micro and macro angiopathic end-organ damage., U. D. Lichtenauer, J. Seissler, Der Internist 44(7), 840-6, Germany, 2003.

8.Wafeek M. Elsheikh. New Stoke Prognostic factors. The Egyptian Journal of Neurology, Psychiatry and Neurosurgery, Egypt, 2020.

9.Chapter 19: Stoke and Diabetes., Aleksandra Pikula, MD, Barbara V. Howard, PhD, DIABETES IN AMERICA, 3rd Edition, USA, 2015.

10.Hemorragic stoke., Unnithan AKA, Mehta P., StatPearls Publishing, Treasure Island (FL), 10 Jul 2020.

12.Hemorragic stoke., Unnithan AKA, Mehta P., StatPearls Publishing, Treasure Island (FL), 10 Jul 2021.

13.Maintaining plasma fibrinogen levels and fibrinogen replacement therapies for treatment of intracranial hemorrhage

Devin McBride, Jiping Tang, John H Zhang Current Drug Targets 18 (12), 1349-1357, 2017

14.Low Fibrinogen Level as a Predictor of Hemorrhagic Transformation after Thrombolytic Therapy for Acute Ischemic Stroke (P1-1. Virtual)

Alessandro Iliceto, Roger Cheng, Deviyani Mehta, Raymond Mirasol, Igor Rybinnik Neurology 98 (18 Supplement), 2022

15. Fibrinogen depletion and intracerebral hemorrhage after thrombolysis for ischemic stroke: a meta-analysis Michele Romoli, David Giannandrea, Andrea Zini Neurological Sciences, 1-8, 2021