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Study of the role of homocysteine in the initiation of a thrombophilic state in patients with severe coronavirus infection

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The study was conducted at the specialized multidisciplinary infectious diseases clinic for the treatment of coronavirus infection. The material was the blood of 60 patients in the intensive care units of the clinic with severe and extremely severe COVID-19, with lung damage from 30 to 90%. The control group consisted of 15 apparently healthy people, with no signs of thrombosis at present and in history. The study of hemostasis parameters was carried out on an ACL-TOP 350 coagulometer manufactured by International Laboratory (USA) and reagents from HemosIL (USA). In parallel, with shifts in the coagulation link of hemostasis, increased platelet aggregation was observed, which may be the result of an increase in homocysteine in the blood and its damaging effect on the vascular endothelium. Since it is known that homocysteine is able to "loosen" the endothelium, as a result of which platelets adhere to the damaged layers and the process of thrombus formation begins.

Laboratory data on homocysteine levels in patients with coronavirus infection

Index	Patients (n=60)	Control group (n=15)
Homocysteine 5.5-10.0 µmol/L	7.64 (Range from 22.65 to 1.44)	7.28 (Range from 11.55 to 4.2)

The homocysteine index was comparable in patients with Covid 19 and in the control group and did not have a significant difference; both values were within acceptable limits.

To continue our study of the effect of homocystiene levels on the development of thrombosis in covid patients, we decided to study it depending on the severity of the process. Patients were divided into 3 groups, depending on the degree of damage to the lung fields.

Changes in homocysteine levels depending on the degree of lung damage

Homocysteine 5.5-10.0 µmol/L	Average valut	Average valut	Maximum M±
Group 1 (n=20) with the degree of damage - 30-50%	9,34	19,0	4,58
Group 2 (n=25) with the degree of damage - 50-75%	6,15	10,68	1,44
Group 3 (n=15) 75% and above	7,88	22,65	3,56
Control group (n=15)	7,28	11,55	4,2

By analyzing the laboratory data obtained from patients with Covid 19 with varying degrees of severity of the process, we can state that homocysteine remains intact in the formation of thrombotic complications in this category of patients.

Speaker Biography

Berger Inna received her PhD in Medical Sciences in 2020 from the Tashkent Medical Academy; in 2022 she received a senior researcher degree and is the head of the scientific department of hemostasis pathology at the Republican Specialized Scientific and Practical Medical Center for Hematology. He has more than 60 publications in local and foreign journals, has patents and is the author of a monograph on thrombosis.

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