STUDY OF THE RHEOLOGICAL PROPERTIES OF BLOOD IN SALMONELLOSIS ON THE BACKGROUND OF TORCH INFECTIONS

[1]Mirismailov M.M., [2]Rashidov F.A., [3]Rikhsieva G.M., [4]Umarov T.U,
[1,2,3,4]Tashkent Pediatric Medical Institute
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Abstract. *The aggregative capacity of platelets and retraction of clot in children with salmonellesis mikst cytomegalovirus and herpes strains was studied. 85 children with salmonellesis due to S. typhimurium for last 5 years were observed. In children with salmonellesis caused by mikst strains the aggregative capacity of platelets and retraction of clots depended on severity and period of disease. In children with salmonellesis caused by mikst, severe and mild cases in all period of disease and aggregative capacity of platelets and retraction of clot were significantly and reliably reduced comparing the control group.*
Keywords: *salmonellesis, cytomegalovirus, herpes.*

Purpose of the study: to study the aggregation abilities of platelets and blood clot retraction in young children with salmonellosis caused by Salmonella typhimurium associated cytomegalovirus and herpes infection.

Materials and research methods: Under observation were 85 sick children with salmonellosis of early age caused by Salmonella typhimurium, who over the past 5 years were in 4 - 5 children's infectious diseases hospitals in Tashkent. Of these, 55 sick children were diagnosed with salmonellosis caused by Salmonella typhimurium associated with (main group). 30 sick children were diagnosed with salmonellosis caused by Salmonella typhimurium without mixed and herpes (control group).

Results: We studied the aggregation ability of platelets and blood clot retraction in young children with salmonellosis associated with CMV and herpes, depending on the severity of the disease (Table 1). It was found that in children of the main and control groups, with severe and moderate course of the disease, there was a decrease in platelet aggregation ability and blood clot retraction; the level of these indicators depended on the severity of the disease

Actuality. Salmonellosis in young children is characterized by clinical and epidemiological features, pronounced polymorphism of clinical manifestations, a significant number of severe, complicated forms, and a tendency to protracted course, which complicates rational treatment and rehabilitation of sick children. The severity of salmonellosis in young children largely depended on the degree of damage to organs and systems leading to impaired hemostasis. Violation of water-salt and water-electrolyte metabolism during salmonellosis in young children leads to a pronounced disturbance of cardiohemodynamics and erythrocyte, platelet-vascular disorders of hemostasis. Multiple organ and systemic lesions in severe salmonellosis in children are affected by associated and herpetic infections [3, 4]. It should be noted that disorders of hemostasis and destruction of membranes of erythrocytes and platelets in children with salmonellosis of early age associated with cytomegalovirus infection have been little studied. In this regard, we have set the following goal: to study the aggregation abilities of platelets and blood clot retraction in young children with salmonellosis caused by Salmonella typhimurium associated cytomegalovirus and herpes infection.

Materials and research methods: Under observation were 85 sick children with salmonellosis of early age caused by Salmonella typhimurium, who over the past 5 years were in

4 - 5 children's infectious diseases hospitals in Tashkent. Of these, 55 sick children were diagnosed with salmonellosis caused by Salmonella typhimurium associated with (main group). 30 sick children were diagnosed with salmonellosis caused by Salmonella typhimurium without mixed CMV and herpes (control group). We studied the resistance of the capillaries of the cuff test with the formation of pinpoint hemorrhages on the skin in the area of short-term venous pressure in young children of the main and control groups. Capillary resistance is an indicator of platelet-vascular hemostasis in this pathology. The study of platelet aggregation was determined by a qualitative microscopic method in accordance with the recommendations of T. Caen et all. (1968) modified by R.M. Biggss (1976), using ADP solution as a stimulant.

Blood clot retraction was determined by a quantitative method proposed by E. T. W. Thompson (1971). Determination of immune complexes (IC) consisting of Salmonella antigens and antibodies on the membrane of erythrocytes of children with salmonellosis was carried out in a reaction. Specific antibodies in the peripheral blood IgM and IgG were detected using the ELISA method, diagnosticum Vector Best (Russia).

Results and its discussion: We studied the aggregation ability of platelets and blood clot retraction in young children with salmonellosis associated and herpes, depending on the severity of the disease (Table 1). It was found that in children of the main and control groups, with severe and moderate course of the disease, there was a decrease in platelet aggregation ability and blood clot retraction; the level of these indicators depended on the severity of the disease. In children of the control group with mild salmonellosis, platelet aggregation ability and blood clot retraction were within normal limits and the average values did not differ from those of healthy children. It should be noted that the most dramatic decrease in platelet aggregation ability and blood clot retraction was observed in sick children of the main group with severe disease. It should be emphasized that the indicators of platelet aggregation ability and blood clot retraction in sick children of the main group with severe and moderate salmonellosis were significantly reduced (P<0.01-0.001) compared to sick children in the control group. The results obtained show the importance of CMV and herpes in the disruption of hemostasis in this pathology.

Table 1

Platelet aggregation ability and blood clot retraction in young children with salmonellosis, associated CMV and herpes, depending on the severity of the disease (total data)

Severity of the disease	Number of children examined	Platelet aggregation capacity (sec)			Blood clot retraction (%)		
		M±m	Part	P с лег	M±m	Рзд	P с лег
Lung	- n = 10 (control)	- 32,8±1,4	- >0,05	- -	- 62,0±3,8	- >0,05	- -
Medium-heavy	n = 30 (main) n = 10 (control)	75,6±1,9 51,5±1,4 P_1<0,001	<0,001 <0,001	<0,001 <0,001	24,2±5,1 41,7±6,6 P_1<0,001	<0,001 <0,001	<0,001 <0,001
Heavy	n = 25 (main) n = 10 (control)	91,4±1,6 72,5±1,7 P_1<0,001	<0,001 <0,001	<0,001 <0,001	14,5±3,9 20,5±1,3 P_1<0,001	<0,001 <0,001	<0,001 <0,001
Healthy children	n = 20	31,5±1,2		>0,05	63,3±6,7		>0,05

Appendix: P_1 – reliability of differences between the indicators of the main and control groups.

As presented in Table 2, the severity of the decrease in platelet aggregation and blood clot retraction in young children of the main and control groups with salmonellosis depended on the severity and period of the disease. At the same time, we found that the most dramatic decrease in platelet aggregation and blood clot retraction was observed in children of the main group with severe salmonellosis during the height of the disease. In sick children of the control group with severe salmonellosis during the height of the disease, a sharp decrease in platelet aggregation and blood clot retraction was also noted, however, the average indicators of these studies were significantly different from the indicators in children of the main group (P<0.01-0.001).

During the period of extinction of clinical symptoms, the indicators of platelet aggregation and blood clot retraction in children of the main and control groups increased significantly (P<0.01-0.001). At the same time, in children of the main group, the indicators of platelet aggregation and blood clot retraction increased at a slow pace. During all periods of the disease, in sick children of the main group with a moderate course of the disease, the indicators of platelet aggregation and blood clot retraction were significantly reduced, compared with children of the control group with a moderate course of the disease (P<0.01-0.001).

Table 2

Platelet aggregation ability in young children, patients with salmonellosis, patients with salmonellosis, associated CMV and herpes, depending on the severity and period of the disease

Severity of the disease	Number of children examined	Platelet aggregation capacity (sec)				
		Height		Fading		
		M±m	Рзд	M±m	Рзд	P_1
Medium	n = 30 (main) n = 10 (control)	80,5±2,5 64,1±1,6 P_2<0,001	<0,001 <0,001	62,3±1,9 50,2±1,8 P_2<0,001	<0,001 <0,001	<0,001 <0,001
Heavy	n = 25 (main) n = 10 (control)	98,6±2,1 79,3±2,3 P_2<0,001	<0,001 <0,001	73,4±2,3 60,3±1,8 P_2<0,001	<0,001 <0,001	<0,001 <0,001
Healthy children	n = 20	31,5±1,2				

Appendix: P_1 – the reliability of the differences between the period of peak and decline of the disease; P_2 – reliability of differences between the indicators of the main and control groups.

We analyzed the indicators of platelet aggregation and blood clot retraction in children of the main group with severe salmonellosis, as well as in 4 children with a fatal outcome, depending on the degree of toxicosis. In children of the main group with severe salmonellosis with an increase in the degree of toxicosis with symptoms of severe intoxication, a natural decrease in platelet aggregation ability and blood clot retraction was noted. It should be noted that the more severe the toxicosis, the more pronounced the decrease in platelet aggregation and blood clot retraction. In 4 children with severe salmonellosis with a fatal outcome, in whom ITS, disseminated intravascular coagulation syndrome, neurotoxicosis, and bleeding were observed, the platelet aggregation rate was sharply reduced, and the rate of blood clot retraction was not even determined. The blood of these children did not clot.

All these sudden changes were observed several hours before the onset of death. In these children, high concentrations and herpes IgM antibodies were detected in the peripheral blood.

Conclusion:

1. In young children with salmonellosis caused by Salmonella typhimurium associated and herpes, pronounced changes in indicators of platelet aggregation ability and blood clot retraction are observed, which leads to severe salmonellosis, exacerbating the pathological process.

2. In young children with salmonellosis caused by Salmonella typhimurium associated and herpes with severe and moderate course during all periods of the disease, the indicators of platelet aggregation and blood clot retraction were significantly reduced compared to sick children in the control group.

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