

RHEOLOGICAL PROPERTIES OF BLOOD AT ERYTHRODIERESIS ACTIVATION IN CLINIC AND EXPERIMENT (MACACCUS RHESUS)

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There are few literature data on change of parameters of blood fluidity in patients with autoimmune haemolytic anaemias (AHA) and there is a lack of data on creation of model of haemolytic anaemias (HA) in large laboratory animals (Macacrus rhesus) for studying the mechanisms of erythrodiereis and changes of haemorheological properties. We established that in patients with AHA the blood viscosity has been decreased that correlated with a low haematocrite parameters. However, microrheological properties of blood have been essentially changed: a 4-8 times decrease in erythrocytes deformability. In 50% of cases index rigidity has been 15-20 times increased and erythrocyte deformation parameters have been almost twice decreased. Integrated acid resistance of erythrocytes has been considerably increased, mainly due to increase of the content of high firm erythrocytes. This is evidence of erythrodiereis intensification with mainly endocellular mechanism of destruction and simultaneous stimulation of red sprout blood formation and emission of young forms of erythrocytes (inefficient erythropoesis). Study of aggregation-desegregations properties of erythrocytes reveals an acceleration of erythrocytes aggregation in 70% of cases in spite of the reduced viscosity of plasma, in a combination to the delayed disintegration of hydrodynamically strong fine (β) and large units (Ia (2.5)). Thus, in patients with erythrodiereis activation, in spite of satisfactory parameters of blood fluidity, the expressed changes microhaemorheology has been observed, i. e., increased rigidity, the reduced erythrocyte deformation, syndrome of hyperaggregation which has not been connected with plasma factors, but with changes of physical and chemical properties of erythrocytes. For further studying of erythrodiereis mechanisms experiments were carried out on the development of a model of chemical induced haemolysis (phenyl hydrazine - 50 mg /kg) on monkeys Macacrus rhesus. The development of HA has been suggested by decrease in hemoglobin level, erythrocytes, hematocrite and increase in quantity of reticulocytes in 24 hours after infusion of preparation. The maximum intensity of erythrodiereis has been observed in 7-9th days of experiment at corresponding myelopoiesis activation, expressed not only in increase in the number of young cells of an erythroid line, but also other sprouts of haemopoiesis. Thus, in patients with AHA the opposite directed data on blood rheology have been observed: seeming positive viscosimeter parameters at essentially broken rheology blood in a zone of microcirculation (increased rigidity, the reduced deformation characteristics erythrocytes, the hyperaggregation syndrome dependent mainly from change of physical and chemical properties of erythrocytes. This research using a new haemolysis model of Macacrus rhesus in perspective will allow to estimate in a complex aggregate state of blood and erythrodiereitic component and to reveal mechanisms of change of microhaemorheological properties.