Babesiosis of dogs refers to blood-borne parasitic diseases manifested by fever, anemia and jaundice of mucous membranes, hemoglobinuria, disorders of the cardiovascular system and digestive organs [1, 2]. Simultaneous damage to the kidneys, liver and cardiovascular systems significantly complicates the course of the disease, which involves constant monitoring of the functional state of the body of sick animals [3, 4]. Babesia parasitize mainly in erythrocytes, can be found in blood plasma and cytoplasm of cells of the reticuloendothelial system. The products of babesia metabolism have toxic properties and act as pyrogens that irritate the center of thermoregulation, resulting in a constant type of fever [1].

Currently, clinical laboratory diagnosis has a significant arsenal of tests and methods for early and accurate diagnosis of many known forms of animal pathology [5–7], including babesiosis, and allows you to monitor the pathological process, the development of possible complications and treatment effectiveness. In the case of babesiosis, changes in the biochemical parameters of samples of biological material are not specific. However, comparing them with the norm, it is possible to assess the degree and nature of metabolic disorders in the body of a sick animal. The aim of our research was to determine the features of changes in the aminotransferase activity of blood plasma in babesiosis of dogs.

The paper summarizes the results of a research of seven plasma samples from dogs with babesiosis. The diagnosis of the disease was confirmed microscopically. Blood was taken from Labrador dogs aged 3 to 5 years from the anterior subcutaneous vein of the forearm. Plasma was obtained for biochemical analysis of native blood by centrifugation at 2000–2500 thousand rpm for 5 min. Analysis of the activity of aspartate aminotransferase (AST) and alanine aminotransferase (ALT) were performed on a biochemical analyzer StatFax 4500 (USA). The reagents of Global Scientific (USA) were used in the work.

As a result of research of aminotransferase activity of blood plasma of dogs at babesiosis the hyperfermentemia AST and ALT is established. In particular, with moderate babesia invasion, the activity of aspartate aminotransferase increased on average 2.9 times and alanine aminotransferase 1.5 times compared to the reference...
In this case, the de Ritis coefficient (AST/ALT ratio) was 0.98 ± 0.04, which indicates a decrease in the functional activity of the liver. Disorders of the functional state of the liver in this blood-borne parasitic disease are primarily associated with general intoxication of the body with the products of babesia, severe course with damage to internal organs and hepatotoxicity of drugs. In addition, the main source of energy for the parasite is anaerobic glycolysis, which leads to excessive lactate formation. Increased concentration of the latter in the blood causes the development of lactic acidosis. The shift of the active reaction of the blood and intracellular environment to the acidic side also affects the activity of enzymes, including aminotransferases.

Thus, a study of plasma aminotransferase activity in canine babesiosis revealed the development of both AST and ALT hyperenzymemia, which leads to corresponding changes in their ratio (the value of the de Ritis coefficient) and indicates functional changes in the liver due to its toxic lesions. This allows the use of these indicators as markers of the functional state of the body, in particular the liver, in babesiosis invasion of dogs.

References: