

allowing them to interact and jointly develop and implement programs, strategies, legislation measures and research aimed at improving the health indicators of the population.

The most important challenge is to drive innovation and capital investment in areas such as operational research, the discovery and development of new antimicrobials, vaccines and diagnostics, especially for the most serious gram-negative bacteria, in particular carbapenem-resistant Enterobacteriaceae and *Acinetobacter baumannii*.

## WAYS TO IMPROVE THE DIAGNOSIS OF PARASITIC INVASIONS

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**Introduction.** According to the WHO, the problem of infectious pathology has not lost its relevance. As before, infectious diseases, including new ones, pose a threat to human development, as they are the cause of a third of the world's total annual deaths. According to the World Bank, in recent decades there have been 50% of deaths of children under 5 years of age caused by infectious diseases (respiratory pathology, intestinal infections, measles, malaria, AIDS, etc.), and in the structure of morbidity in this age group infectious diseases 80%. According to the World Health Organization, mortality from infectious diseases in some countries ranks second in the structure of overall mortality. In addition, the ability of pathogens to mutate and the formation of resistance to chemotherapeutics should be noted. Among the factors of infectious diseases, special attention is drawn to the pathogens of protozoal diseases: malaria, leishmaniasis, trypanosomiasis and others. Pathogens that have overcome the species barrier are especially dangerous. Babesiosis is recognized as such a pathogen that can cause disease in humans. Babesiosis is a group of emergent obligate-transmissible, naturally-mediated hemoparasitic protozoan anthro-pozoonoses, which are transmitted by blood-sucking arthropods - mites of the superfamily *Ixodoidea* of the family *Ixodid*. The onset of the disease can be fatal in most cases. The vector is a tick, in the body of which the virus persists for life, as a result of which it can be transmitted transovarially. The clinical course of babesiosis infection is diverse, which should be associated with different types of babesia: *Babesia bovis*, *Babesia divergens*, *Babesia odocoilei*, *Babesia microti* and *Babesia duncani*. The variety of etiological factors complicates the diagnosis and requires improvement of methods for identifying the causative agents of babesiosis.

**Aim.** To analyze the current state of diagnosis of the disease and identify promising ways to improve laboratory diagnosis of babesiosis.

**Materials and methods.** Systematic and content analysis (analysis of domestic and foreign publications on the study of babesiosis pathogens), as well as the method of generalization (formation of conclusions) were used during the study.

**Results and discussion.** According to the literature, the taxonomic position and diversity of species determines the peculiarity of the causative agent of babesiosis. It is known that babesiosis is caused by a pathogen from the class of spores, and, when ingested, is concentrated in the center of erythrocytes, as well as on the periphery of the cell structure. Thus, babesia begin to multiply inside the erythrocytes, resulting in a hemolytic crisis, accompanied by the appearance of hemoglobin in the

urine. The latter usually occurs when about 5% of erythrocytes are affected. As a result, elevated hemoglobin levels lead to kidney damage and a significant increase in indirect bilirubin.

The causative agent of babesia infection is especially dangerous, especially for people with weak immunity, especially HIV-infected or agricultural workers during the period of tick activity, and this is the summer-autumn or spring-summer period. With asymptomatic development, transmission is possible from infected people who themselves are unaware of the virus in the body.

Babesiosis can also be transmitted through a blood transfusion from an infected donor, which is subsequently characterized by a chronic or asymptomatic course of the disease. That is why the diagnosis of this disease is most relevant.

At the present stage, laboratory diagnosis of babesiosis is somewhat limited and needs to be improved. The similarity of babesiosis infection with malaria leads to the improvement of microscopy methods, and the frequent detection of asymptomatic course of the invasion justifies the need to determine tissue and cell markers. According to the latest research of Ukrainian scientists, it is the skin, lymph nodes, spleen, erythrocytes that can be used as markers. In addition, molecular genetic methods and PCR diagnostics should be identified as promising areas of diagnosis.

**Conclusions.** Determining the urgency of this problem, the prospects of improving microscopy methods against the background of determining specific inclusions in erythrocytes, detecting a shift in the leukocyte formula, qualitative and quantitative changes in the population of hemostasis cells in the format of expert diagnosis of babesiosis. A promising direction in the diagnosis of this parasitic disease is the determination of markers of babesiosis infection in target organs / cells (skin, lymph nodes, lymphoid apparatus of the gastrointestinal tract, spleen, liver, blood vessels, peripheral blood erythrocytes) and the use of molecular genetic methods.