

Studying the Efficiency of Various Laboratory Methods for Detecting Brucellosis Among People in Azerbaijan

Shafa Gasanova*

National Research Institute of Medical Prophylaxis named after V. Y. Akhundov, Baku, Azerbaijan

Email address:

shafahasanova87@gmail.com (Shafa Gasanova)

*Corresponding author

Abstract

Introduction: The variety of clinical manifestations, their similarity with other diseases, attempts at self-treatment and the late appeal of patients for medical care have always made it difficult to diagnose brucellosis, the burden of which has remained high in Azerbaijan for many years. Interpretation of used serological tests is often difficult in the endemic areas of Azerbaijan, where a large proportion of the population comes into contact with infected animals or animal products and may have antibodies against Brucella. The purpose of this work was to compare the efficiency of routine methods in the diagnosis of brucellosis for determining the total activity of specific antibodies (Hedderson, Wright, Rose Bengal test) and ELISA. *Methods:* Blood samples received by Special Dangerous Infections Control Center in 2019-2021 from 3209 patients with suspected brucellosis. Blood serums for the presence of antibodies to the causative agent of brucellosis were examined in tests: Hedderson, Wright reaction and the Rose Bengal Test (RBT). Also, antibodies to the causative agent of brucellosis in the blood serum were determined by ELISA. *Results:* Out of 3209 patients who applied, 408 (40.6% of all cases) had primary brucellosis and 596 (59.4%) had chronic brucellosis. The mean age of patients ranged from 35.4 (primary notified cases) to 32.3 (chronic cases). 1777 people (55.4% of all applicants) are male patients. Urban residents accounted for 57.1%. When Brucellosis IgM-positive IFA results were compared with the Wright reaction, the initially reported cases of brucellosis, the antigen titer of the Wright reaction (1/1600-1/3600) (62.4%) were also observed. When comparing the results of agglutination reactions, no significant differences were found between the sensitivity of Hedderson and Rose Bengal reactions. Also, the same number of positive results were obtained for the Hedderson reaction and IFA in samples from patients with primary brucellosis. *Conclusion:* The IFA method and agglutination reactions (Hedderson and Wright reactions) are equally effective in the diagnosis of acute brucellosis. In addition, high titers of antibodies in acute cases almost always indicate the presence of brucellosis, while low titers of antibodies or their absence do not exclude the possibility of the disease. While low titers of antibodies it is recommended that patients be re-examined within 2 weeks.

Keywords

Brucellosis, Laboratory Tests, Efficacy, IFA