Evaluation of Brucellosis in Patients and Diagnostic Tests

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Abstract: Brucellosis is a zoonotic bacterial disease which a gram negative bacterium called brucella creates it. Annually more than 500000 new cases are affected by this infection, So this disease is a remarkable threat for health. Because this infection has non-specific clinical symptoms such as fever, night sweet and these symptoms are similar to the other diseases, so detection of brucellosis is difficult. Blood culture is the gold standard. Now a day's some kinds of tests like serological tests such as SAT, 2ME, RBT and coombs test which are approved. Some tests like ELISA for its screening trait is adjustable. More ever, LFA as a kind of this test could be beneficial in diagnosis of infection. PCR is a molecular diagnostic test which is more prevalent than other common tests, according to sensitivity and specificity. In this note we will evaluate these methods.

Key words: Brucellosis · Zoonosis · Diagnosis

INTRODUCTION

Brucellosis is a zoonotic disease remained as important global dilemma. Some areas such as Arab peninsula, middle east, south and west of America and Mediterranean regions are as the most popular areas which disease beheld [1]. The most common infection transition ways is utilization of unpasteurized dairy products, particularly raw milk, butter, soft cheese and ice cream [2]. Each organs and tissues can involve with this infection, also among them osteoarticular is one of the main engagements. Endocarditis is the most important cause of mortality in this disease. Incubation period this infection is about 2-3 weeks.Chief complain of patients are fever, night sweating, backache, losing weight and fatigue [3]. Strings of findings, past medical history, clinical findings, biochemical tests and magnetic resonance imaging (MRI) are the most practical diagnostic methods in this disease and also epidemiological information of brucellosis is very helpful for diagnosis in endemic area. The blood culture is the best gold standard methods for brucellosis diagnosis and for isolation of brucella bacteria from patients.Biphasic Ruiz-castaneda system is the most popular one. Incubation period of this test is mostly long something about six weeks [4]. Today's some methods such as lysis centrifugation test substituted by conventional method. Average detection time in this test had been declined [5]. Among automated culture systems must be also named bactec methods, like bact/Alert and bactec 9204.Another diagnostic methods is bone marrow culture test that the detection time had been also declined. This test for diagnoses of patients who have fever unknown origin and also have negative serological test response is priceless albeit biopsy of bone marrow is awful.

Laboratory diagnosis of brucellosis is based on manifestation of the serum antibody. In recent years, design of several serological tests is fulfilled which application of them are based on agglutination. These tests are including of some items which we would explain about it in continue. Rose Bengal test (RB) mostly is applicable to screening of brucellosis [6].

This test is very sensitive and accurate for acute patients and also accomplishment of that test is so easy. It must be mentioned that, this test in chronic form of disease has many false-negative results. Rose Bengal plate test (RBPT) is recommended as a worthful test in screening, especially in some situations which Serum agglutination test (SAT) in rural high risk region is not applicable.SAT can measure total quantity of IgM and

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IgG. In developing countries, one of the most premier diagnosis methods for brucellosis is titer SAT»1:320 with titer 2ME»1:80 via clinical signs. Although most of patients in endemic area suffer from acute bacteremia have at least 1:320 titer of SAT [7]. In some chronic occasions SAT has false-negative result. Coombs test for diagnosis of chronic form of infection is operative and valuable.

This test for survey of brucellosis relapsing has acceptable sensitivity [8]. Enzyme-linked immunosorbant assay (ELISA) is so sensitive for diagnosis of IgM, IgG and IgA antibodies in patients' blood who infected by brucella [9].

This test as an easy, fast and reliable method is applicable for diagnosis of acute form of infection. Immunochromatography lateral flow assay (LFA) test is in complex form of ELISA. Fast fulfillment and facile commentary are some prominent features of this test. Polymerase chain reaction (PCR) test is a molecular detection test is applicable for detection of micro organisms DNA. Sensitivity of this method is approved and also is accomplished faster than conventional methods [10]. PCR test has appropriate utilization for monitoring of treatment efficacy and recent relapses and because of possibility of contamination in this test in high ranking therefore, real time PCR expanded that it has simple utilization in clinical centers and it is contamination presumption is under PCR test [11].Despite of all items which mentioned before, manifestation of some tests that have fast, high sensitivity and specificity features for brucellosis detection are also main issue for argumentation and future research. For this reason more studies are required.

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