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Comparison of a novel diagnostic test (ODAK Brucella Coombs Gel Test) with Standard Agglutination Test, Coombs Wright Test and Brucellacapt in human brucellosis cases

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Objectives: Brucellosis is difficult to diagnose based on clinical symptoms. Therefore, the diagnosis mostly relies on the results of serological testing. ODAK Brucella Coombs Gel Test (CGT) is a novel and rapid gel microcolumn agglutination test which is performed in microcolumns containing gel matrix and Coombs antibodies. In this study, we aim at comparing CGT with other commonly used serological tests.

Methods: In this study, we included totally 150 blood samples of patients preliminary diagnosed as Brucellosis in Igdir which is an endemic area in Turkey. 50 of these were selected out of Rose Bengal (RB) and Standart Tube Agglutination (STA) test (+) samples, other 50 out of RB and STA (-) samples and the last 50 out of RB (+) and STA (-) samples. We performed CGT and Brucellacapt for all samples. Coombs Wright test is performed for only STA negatives. 1/160 and higher titers were accepted as positive result for all methods except for RB.

Results: Although all of the RB (-) STA (-) negative samples were also found negative with Coombs Wright, 2 samples (4%) with CGT and 5 more samples (7 in total, 14%) with Brucellacapt were found positive. Among 50 RB (+) STA (-) samples, 18 (36%) were found positive with Coombs Wright test, 28 (46%) were positive with CGT and 37 (74%) were positive with Brucellacapt. All 50 RB (+) STA (+) samples were also positive with CGT and Brucellacapt except for one sample which was found negative with CGT. Besides, results of 14 (28%) and 16 (32%) samples were found higher positive at least one titer with CGT and Brucellacapt respectively. However, Brucellacapt results of three patients were one titer less than in GT and STA. Among all RB positives, 87 (87%) samples were found positive with Brucellacapt while 77 (77%) samples were positive with CGT. Moreover, among all the RB negatives, 48 (96%) samples were found negative with CGT and 43 (86%) samples were positive with Brucellacapt.

Conclusion: Currently, CGT is the only rapid (<1 hours) serological test which Coombs antibodies are used. Our results showed that negative results of RB were not found reliable enough as a screening test compared to GCT. However, positive RBT results confirmed with STA were almost always in most of the cases with higher titers, positive with CGT and Brucellacapt. On the other hand, even if STA is found negative with RB positivity, samples still must be investigated with Coombs Wright, CGT or Brucellacapt. Consequently, CGT maybe used as a rapid screening test instead of RB and furthermore, it has similar sensitivity with the other confirmation tests which Coombs antibodies are used. Therefore, ODAK Brucella Coombs Gel Test seems to be a very useful diagnostic tool for Brucellosis.

Biography

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