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Letters to the Editor

Persistence of Brucella Antibodies after Successful Treatment of Acute Brucellosis in an Area of Endemicity

Brucellosis is an endemic zoonotic disease in Saudi Arabia. Accurate diagnosis of brucellosis is made by the isolation of *Brucella* species, but this is achieved only in 40 to 70% of cases (4). Therefore, laboratory diagnosis of brucellosis is made by demonstration of high levels of *Brucella* antibodies with the standard agglutination test (SAT) (2). We conducted a study to monitor *Brucella* antibody titers in patients with acute brucellosis who were treated and followed up in King Fahad National Guard Hospital, Saudi Arabia. Acute brucellosis was confirmed by the presence of *Brucella* species in sterile fluid and/or by rising *Brucella* antibody titers by using SAT in the presence of signs and symptoms of brucellosis. The inclusion criteria included patients who were considered cured of their disease based on the absence of clinical symptoms, presence of three or more serological follow-ups, and absence of relapse or reinfection during the follow-up period. A patient was defined as serologically cured if the titer decreased to less than 1:320 during follow-up.

One hundred sixteen patients met the inclusion criteria. The serological cure rate increased from 8.3% in the first 3 months to 71.4% after 2 years or more of follow-up. The median time of serological cure was 18.5 months (standard deviation = 3 months), and 28.6% of cured patients continued to have a titer of 1:320 or higher 2 years or more after the infection. In a univariate analysis of prognostic variables, the serologically cured patients were on average younger (26.0 years versus 29.4 years) and female (44.4% versus 30.6%) and received three or more antibiotics instead of monotherapy or double therapy (43.2% versus 33.3%) than the one who did not achieve a serological cure ($P > 0.2$). Patients receiving doxycycline in the treatment regimen were more likely to have a serological cure than patients who did not receive doxycycline (51.1% versus 27.5%) ($P < 0.05$). The initial titer levels and *Brucella* bacteremia did not affect the serological cure ($P > 0.5$). In a Cox regression analysis, none of the variables studied were significantly associated with a serological cure ($P > 0.1$).

This study is the first to examine the persistence of *Brucella* antibodies in patients with a previous history of acute brucellosis. In Saudi Arabia, a seroprevalence survey of *Brucella* antibodies among a population of over 23,000 individuals revealed a prevalence rate of 15% for any titer and a prevalence rate of 4.5% for titers of 1:320 or more (1). This survey did not differentiate between active infection, past infection, and subclinical exposure. Our finding implies that many clinically cured patients continue to have various levels of *Brucella* antibodies for a long time after acute brucellosis. This poses a challenge for the diagnosis of brucellosis in patients with signs and symptoms suggestive of brucellosis when their symptoms are caused by other infectious or noninfectious diseases. The implication may be overdiagnosis and exposing patients to unnecessary anti-*Brucella* treatment (3). Until more specific tests are developed that rely on the presence of *Brucella* antigens or the isolation of organisms, this problem will continue to exist.

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