



Characteristics of *B. melitensis* versus *B. abortus* bacteraemias

Başak Dokuzoğuz^a, Önder Ergönül^{a,*}, Nurcan Baykam^a, Harika Esener^a, Selçuk Kılıç^b, Aysel Çelikbaş^a, Şebnem Eren^a, Berrin Esen^b

^aThe First Infectious Diseases and Clinical Microbiology Clinic, Ankara Numune Education and Research Hospital, Ankara, Turkey

^bRefik Saydam Hygiene Center Ankara, Turkey

Accepted 21 February 2004

Available online 8 April 2004

KEYWORDS

Brucella; Bacteraemia;
Abortus; Melitensis

Summary Objective. To determine the epidemiological and the clinical characteristics of bacteremic brucellosis.

Methods. A prospective study, performed in the First Infectious Diseases Clinic of Ankara Numune Education and Research Hospital. All the patients had positive culture result for *Brucella* spp.

Results. Fifty-four acute bacteremic brucellosis cases were included. The majority of patients (76%) were from rural Anatolia. *Brucella melitensis* serotypes were more common than *Brucella abortus* (83% versus 17%). Fever and arthralgia were the most common symptoms. The number of patients with back pain and arthralgia was higher in *B. abortus* infected group ($p = 0.014$ and $p = 0.009$).

Conclusions. *B. melitensis* is the most common subtype of Brucella infection in Turkey. The infections with *B. abortus* spp. are not less severe than the infections with *B. melitensis*.

© 2004 The British Infection Society. Published by Elsevier Ltd. All rights reserved.

Introduction

Brucellosis remains an endemic disease in many regions of the world, being more prevalent in developing countries, particularly endemic in western parts of Asia, India, Middle Eastern, Southern European, and Latin American countries.¹ Infection is mostly prevalent in areas in which people are exposed to animals that are carriers of the different brucellae species.

Clinical syndromes of Brucellosis might differ according to the responsible strain. *Brucella melitensis* was defined as the most pathogenic species, producing the most intense symptoms, the greatest tissue damage and the most frequent incidence of localization in body organs, systems or tissues, whereas *Brucella abortus* was defined as the least pathogenic species.² However, details of clinical syndromes based on infection of different species was not very well described yet. We studied the clinical and epidemiological characteristics of *B. abortus* and *B. melitensis* in a brucella endemic country.

*Corresponding author. Address: Güvenlik caddesi, 17/10, Aşağı Ayrancı, 06540, Ankara, Turkey. Tel.: +90-312-4194227.
E-mail address: oergonul@hotmail.com

Material and methods

Study group

Ankara Numune Education and Research Hospital is one of the largest tertiary referral state hospital in Ankara. The hospital has 1100 patient beds. All the patients had been treated in Infectious Diseases Clinic between January 1996 and May 2002 with the diagnosis of acute brucellosis. At least three blood cultures were obtained from all the patients, who had body temperature of $>37^{\circ}\text{C}$. The patients with positive culture results of *Brucella* spp. were included to the study. The cases without positive culture results were diagnosed based on serum tube agglutination tests, and these patients were excluded from the analysis. The laboratory tests for HBV, CMV, EBV were negative. None of the patients had immunosuppression or any other morbidity.

Microbiological studies

The blood and cerebrospinal fluid (CSF) were examined by serial tube agglutination and Coombs test for incomplete brucella antibodies. Samples of blood and CSF were cultured using an automated culture system (Organon Tecnica Bact/Alert, Bio-merieux®, France). The biotyping of the bacteria was performed by H_2S production, urease positivity, dye sensitivity test (20–40 $\mu\text{g}/\text{ml}$ basic fuchsin and growth in thionine).

Definitions for clinical syndromes

Anaemia was defined as haemoglobin level $<12\text{ g/dL}$, leukopenia as leucocyte counts $<5000\text{ mm}^3$, and thrombocytopenia as thrombocyte count $<150,000\text{ mm}^3$. Elevation of AST and/or ALT was defined as >2 -fold increase than normal levels. Neurobrucellosis was diagnosed by the following criteria; (i) symptoms or clinical findings compatible with neurobrucellosis, including headache, confusion, mental and emotional changes, (ii) isolation of *Brucella* spp. from CSF and/or demonstration of antibodies to *Brucella* $>1/4$ in the CSF, (iii) the presence of lymphocytosis, increased protein and decreased glucose levels in the CSF, and (iv) clinical improvement with appropriate treatment.¹ Endocarditis was diagnosed by echocardiography findings.

Data analysis

Data were analyzed using Stata Statistical Software, version 7.0 (STATA corporation, Texas, USA).

Proportion comparisons for categorical variables were done using chi-square tests, although Fisher's exact test was used when data were sparse. Significance was set at $p < 0.05$ using two-sided comparisons.

Results

From January 1996 to May 2002, 243 brucellosis inpatients had been admitted to our clinic. *Brucella* spp. were isolated from blood cultures of 54 patients out of 243 (22%). Eighty-three percent of the isolates were speciated as *B. melitensis*, and 17% as *B. abortus*. Among the *B. melitensis* species, 35 (78%) were identified as biovar 3, and 10 (22%) as biovar 1. One of the *B. abortus* isolate was identified as biovar 1 (11%), six of the isolates as biovar 3 (67%), and two of the isolates (22%) could not be identified as known subtypes.

Demographic and epidemiological characteristics of the patients were depicted in Table 1. Forty-six percent of the patients were female. The rate of male patients among *B. melitensis* isolated group was higher than *B. abortus* group, but the difference was not statistically significant ($p = 0.065$) (Table 1). The mean age was 37.6. Forty-one (76%) patients were from rural Anatolia. More than half of the cases were admitted during spring and summer (54%).

All the subjects except three laboratory workers had the history of fresh cheese consumption. Thirty-one percent of the patients were farmer. The seasonal pattern, age, residence, and being farmer were not statistically different between *B. melitensis* and *B. abortus* isolated patients (Table 1).

The most common symptoms were fever (72%), arthralgia (37%), and back pain (30%) (Table 2). Lymphadenopathy and epistaxis were rare, and noted only among the *B. abortus* isolated patients. Neurobrucellosis was noted in 13% of the cases, and it was relatively more common among *B. abortus* isolated patients (33% versus 9%), although the difference was not statistically different ($p = 0.081$). Two patients had positive culture from CSF in out of seven neurobrucellosis cases (29%). These two strains were speciated as *B. abortus*. The rate of sacroileitis was 9%, and other organ involvements (endocarditis, epididymo-orchitis, and parotitis) were rare (Table 2).

The mean erythrocyte sedimentation rate was 42 mm/h, and the median was 40 mm/h. All the patients had serum tube agglutination levels of >160 , the median was 1:1280. Thirty-one percent

Download English Version:

<https://daneshyari.com/en/article/9270650>

Download Persian Version:

<https://daneshyari.com/article/9270650>

[Daneshyari.com](https://daneshyari.com)