INTRODUCTION:
Brucellae are Gram negative coccobacilli causing brucellosis. It is a systemic infection presenting with non-specific clinical manifestations (1). Hence though having considerable morbidity it remains misdiagnosed and underreported. Blood culture provides a confirmation but has certain limiting factors. Hence laboratory diagnosis mainly relies on the Standard Tube Agglutination Test (STAT) which detects antibodies against Brucella. Although a titre of ≥160 IU/ml is considered to be diagnostic, it is influenced by the local baseline titre. The study therefore aims to know the baseline antibody prevalence of anti-Brucella antibodies in apparently healthy people. Approximately 2 ml of blood was collected from 300 apparently healthy blood donors. The serum was separated and processed by the STAT. Out of total 300 specimens, 87(29%) specimens showed presence of anti-Brucella antibodies. A titre of ≥80 IU/ml is considered as significant titre for STAT. Out of 87 sera having anti-Brucella antibodies, maximum number (mode) i.e. 32 (36.78%) were positive at a titre of 20 IU/ml. Therefore considering 20 IU/ml as the baseline titre, a titre of ≥80 IU/ml should be considered as a significant titre for the local population in this area. Hence a titre of ≥80 IU/ml for STAT performed on single sera along with consistent clinical features and history of the patient can be considered as an indication of brucellosis in the local population in this area.

KEYWORDS

MATERIALS AND METHODS:
The present study is a cross-sectional study conducted in the department of Microbiology, Dr. Vithalrao Vikhe Patil Foundations Medical College and Hospital. It is a tertiary care, 750 beded hospital located in Ahmednagar district of Maharashtra. The study was carried out between June 2016 to March 2018. Study was executed only after obtaining approval of the institutional ethical committee. Prior written consent from the participants was obtained before collecting the specimen. Random sampling method was used.

Inclusion criteria:
1. Apparently healthy participants were included. All participants were given questionnaires to be filled. Donors who did not have any obvious signs and symptoms of infectious diseases were included in the study.
2. Healthy donors in the age group of 18-50 were included.

Exclusion criteria:
1. Serum of participants having inclusion criteria, but tested reactive for anti-HIV antibodies, HCV, HBsAg and RPR were excluded.

Methodology:
Health screening of the participants was done by using a questionnaire. Randomly selected, non-repetitive 300 (n=300) blood samples were selected from healthy blood donors in the age group of 18-50 years of both the genders.

RESULTS:
A total of 300 sera were tested for presence of anti-Brucella antibodies. Out of 300, 87(29%) specimens showed presence of anti-Brucella antibodies in STAT. Although a titre of ≥80 IU/ml is considered as significant titre for STAT, the results mentioned above are irrespective of significant titre.

Table no. 1. Distribution of No. of positive sera with their respective titres.

<table>
<thead>
<tr>
<th>Titre obtained in STAT (IU/ml)</th>
<th>No. of samples tested positive by STAT (n=87), f (%)</th>
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<tbody>
<tr>
<td>20</td>
<td>32 (36.78)</td>
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DISCUSSION:
The present study aims to determine the baseline anti-Brucella antibody titre for the Standard Tube Agglutination Test (STAT) and to help develop a local recommendation for interpretation of STAT results. To the best of our knowledge no such study done in Ahmednagar district in the past has been published as of now.

As stated in the results out of 300 sera, 87 i.e. (29%) showed presence of anti-Brucella antibodies. This finding is very high than Mangalgi et al. and Nagarathna et al. who reported only 5.91% and 1.1% positivity respectively(7, 11). Finding in the present study is also quite high than Vaishnavi Kumar who reported 16.8% positivity by STAT (12).

Maximum no.(Mode) i.e. 32 (37.78%) sera were positive for anti-Brucella antibodies at a titre of 20 IU/ml. Therefore considering 20 IU/ml as the baseline titre, a titre of ≥40 IU/ml should be considered as a significant titre for the local population in this area. Hence a titre of ≥40 IU /ml for STAT performed on single sera along with consistent clinical features and history of the patient can be considered as an indication of brucellosis in the local population in this area. The baseline titre reported by Mangalgi et. al. is 80 IU/ml and Vaishnavi Kumar is 40 IU/ml. (7, 12) The present study shows a shift towards a lower titre of 20 IU/ml as baseline. This may be because 79% population of Ahmednagar district belongs to rural area. And it is known that prevalence of brucellosis is higher in rural areas (12). Higher prevalences may lead to repeated sub-clinical exposure to Brucella and perhaps a higher endemicity in this case.

On the other hand, eight sera were positive at a titre of 160 IU /ml and one at 320 IU/ml are also very outstanding findings in this study. No reference could be found for such high titres in baseline studies for comparison. These unusual findings could not be investigated further as the blood donor could not be followed.

CONCLUSION:
The study concludes the following:
1. The base line titre of anti-Brucella antibodies in healthy blood donors in and around Ahmednagar is determined to be 20 IU/ml.
2. Hence a titre of ≥40 IU/ml for STAT performed on single sera along with consistent clinical features and history of the patient can be considered as an indication of brucellosis in the local population in this area.
3. Higher endemicity suggests investigations for brucellosis in Ahmednagar in different populations like high risk group, febrile illness group (commonest presentation), patients with osteoarticular involvement group (commonest complication), at a larger scale.

REFERENCES: