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BRUCELLOSIS;
STUDY OF 200 CASES OF BRUCELLOSIS

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ABSTRACT… Objectives: Brucellosis is one of the most common zoonotic diseases and is still a great health problem in Middle East, the Mediterranean and South Asia. The aim of this study was to evaluate epidemiological and clinical features of brucellosis. **Study Design:** Cross-sectional study. **Period:** 1st Jan 2015 to 31st Dec 2015. **Setting:** Registered medical specialist clinic in a rural area of District Mansehra of Khyber Pakhtunkhwa province of Pakistan. **Materials and Methods:** In this study, two hundred adult patients with brucellosis were included from a registered medical specialist clinic in Mansehra District of Khyber Pakhtunkhwa province of Pakistan, Diagnosis of brucellosis was made using Standard Tube Agglutination test (STA). Epidemiological and clinical characteristics were evaluated. **Results:** Out of two hundred patients with brucellosis, 64% were female and 36% male. Fever was the most common symptom (84%), followed by low backache (76%), arthralgias (66%), and headache (59%). Hepatomegaly was seen in 18% while splenomegaly was present in 28%. Use of unpasteurized milk and dairy products was present in 66% of patients while 36% of patients were involved in animal care. **Conclusion:** Brucellosis should always be considered in patients presenting with fever, low backache, joint pains and headache in endemic areas.

Key words: Brucellosis, Clinical features, Epidemiology.

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INTRODUCTION

Human brucellosis, more commonly known as undulant fever, is the most frequently found zoonotic disease throughout the world.[1,2] Annually over 500,000 new cases are reported from all over the globe. Brucellosis is endemic in many regions of world including the Middle East, Asia, Africa, Mediterranean and Latin America.[2] In a study conducted in occupational groups in Pakistan overall sero-prevalence was found to be 6.9%.[3] Islam et al found that prevalence of brucellosis in Bangladesh was 2.5% - 18.6%.[4]

Transmission of brucella to human beings most commonly occurs through direct contact with infected tissues via breaks in skin, ingestion of contaminated unpasteurized milk and milk products and inhalation of aerosols containing brucella.[5,6] Occupations which bring individuals in direct contact with livestock in endemic areas increase risk of acquiring infection.[6] The incubation period varies from few days to several weeks.[7] Human brucellosis usually presents acutely (less than 2 months) or sub-acutely (2-12 months) as a febrile illness. It can also progress to chronic stage.[8] Brucellosis being a systemic infection has protean of nonspecific clinical manifestations.[9] Acute brucellosis presents with swinging fever, rigors, malaise, headache, joint and muscle pain and scrotal pain.[10] Sub-acute brucellosis is most commonly characterized by persistent and recurrent fever while chronic cases may be complicated by arthritis, osteomyelitis, sacroilitis, spondylitis, meningoencphalitis and endocarditis.[11]

Brucellosis may cause abortion in pregnant women.[12] Fever, hepatosplenomegaley and lymphadenopathy are the most common physical findings.[7]

A large health and economic benefit can be achieved by control of brucellosis in animals in countries with limited resources.[13] A study from

Uganda showed that 47% risk reduction in human brucellosis could be achieved by introduction of pasteurization in urban milk production chains.[14]

MATERIAL AND METHODS

This cross-sectional study was conducted from 1st Jan 2015 to 31st Dec 2015 in a registered medical specialist clinic in a rural area of District Mansehra of Khyber Pakhtunkhwa province of Pakistan. The study included 200 patients of Brucellosis diagnosed on basis of positive Standard Tube Agglutination (STA) test (titer ≥1/160).[15] Patients whose age was 15 years or more were included in study. After taking verbal consent, information of clinical features and risk factors were collected from all patients and entered on a structured proforma. Depending upon duration of illness patients were classified as having acute (<3 months), sub-acute (3-12 months) and chronic (>12 month) brucellosis.[16] Data was analyzed using SPSS 20.

RESULT

Out of 200 patients 128 (64 %) were female and72 (36 %) were male. Most of patients (57%) were less than 40 years (Table-I). Most of the patients (56%) were infected by both B. miletensis and B.abortus. B. abortus alone was responsible for 36% cases while B. miletensis for 8%. Fever was the most common symptom while sacro-iliac tenderness was the most common sign of brucellosis (Table-II). Out of 200 patients 66 % had history of use of unpasteurized milk and milk products while 36% had history of animal exposure. Most of the patients (44%) presented with sub-acute illness while 33% had acute and 23% had chronic brucellosis.

Age group	Cases	Percentage
15-40 years	114	57
41-60 years	70	35
>60 years	16	8

Table-I. Age Distribution n=200

Clinical Features	Cases	Percentage
Fever	168	84
Lower Backache	152	76
Arthralgia	132	66
Headache	118	59
Constitunional sympyoms	80	40
Sacro-Iliac tenderness	82	41
Lymphadenopathy	60	30
Splenomegaley	56	28
Hepatomegaley	36	18

Table-II. Frequency of clinical features n=200

DISCUSSION

Brucellosis, one of the most common zoonotic diseases, is still an important health problem in underdeveloped countries. In our study most of the patients (64%) were females. Svas L et al[15] showed that 72.9% of patients were female and 27.1% were male. Guler H et al[17] and Buzgan T et al[18] also showed female predominance. Brucellosis most commonly affects young people as was seen in our study, where 57% of patients were aged 15-40 years. Gender and age distribution seen in our study is result of regional habits, mostly due to husbandry practices that predisposes females to acquire brucellosis in rural settings. Our results were similar to Fallatah et al[19] and Bosilkovski M et al[20] who respectively found that 60% and 46% patients were younger than 40 years.

Brucella miletensis, one of the four species of brucella, causes the most severe and acute cases of brucellosis.[21] Brucella abortus is more widely distributed throughout the world than B. miletensis.[22] In our study 36% of patients were infected with B. abortus and 56% of patients were infected with both B. abortus and B. miletensis.

Brucellosis is transmitted to humans either through contaminated milk or through contact with infected animals. Unpasteurized milk and its products like soft cheese, yogurts and ice creams may contain large amounts of bacteria and consumption of these is an important route of transmission to humans.[23] The bacterium may also enter human body through lungs or breeches in skin. Boiling or pasteurization of milk and milk

products kills Brucellae which can survive up to 8 weeks in unpasteurized white soft cheese and are not killed by freezing.[24]

Occupational contact with livestock (livestock owners, shepherds, veterinarians and slaughter house workers) in endemic areas increases risk of acquiring brucellosis.[6]

In our study, 66% of patients had history of use of unpasteurized milk and milk products and 36% patients were involved in domesticated animal care. Our results were comparable with Guler et al[17] who found that 75.6% of patients had history of exposure to unpasteurized dairy products. Buzgan T et al[18] found that 63.6% of patients had a history of consumption of raw milk and dairy products while 42.3% had a history of raising livestock. In other studies,[15,25] lower frequencies of consumption of unpasteurized dairy products were noted.

In our study fever was the most common presentation (84%), followed by low backache, joint pains and headache. Constitutional symptoms (anorexia, asthenia, fatigue and weakness) were seen in 40% of patients. Our results were similar to Eini P et al[26] who found that the most common clinical manifestations were fever (77.4%) and joint pains (70%). Mugahi et al[27] and Sofian M et al[28] also noted fever and joint pains to be the most common presentations of brucellosis.

Physical findings reported in different studies vary to great extent. This variation in physical findings is most probably linked to difference in disease duration.[29] Frequency of splenomegaly (28%) seen in our study was comparable with Dilek et al[30] (26.9%) but much lower than Bosilkovski et al[20] (51%). Frequency of hepatomegaly (18%) seen in our study was similar to that seen by Savas L et al[15] (20.7%).

CONCLUSION

Brucellosis is a great public health problem in countries where consumption of raw milk and/ or its products and unhygienic practices in livestock keeping prevail. Brucellosis presents in many nonspecific ways and needs low threshold in high risk areas for early diagnosis. Human Brucellosis can be prevented by disease elimination from domestic livestock, pasteurization of milk and education of those involve in animal care.

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