The incidence of Brucellosis in Salahddin Governorate

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Key words: Brucellosis, Brucella species.

Abstract:

Three hundred ninty eight patients who suffer from symptoms of brucellosis were included in this study. The study was conducted in Tikrit teaching hospital at Tikrit city during the period from 1st of June 2004 to 31 August 2004.The incidence of Brucellosis was 166 out of 398. Among the positive cases, the higher rate of incidence was in female (59.6%). According to association between the age and sex with Brucellosis, the rate of incidence of Brucellosis was higher in female 99 (59.6%) than in male 67(40.4%), most male cases 34 (50.7%) were in age groups (20 -30y), while in female were 37(37.4%) in age groups (>40y). The lower rate of incidence of Brucellosis in male (4.5%) was in age groups (10-20y) and in female was (4%) in age groups (1-10y). Also the study revealed that, the higher rate of infection was found in patients who live in rural areas and who were animal keepers.

Introduction*:*

Brucella is animal pathogen transmitted to human by accidental contact with infected animal products such as : feces, urine, milk,and tissues. The common sources of infection for humans are unpasteurized milk,milk products,cheese and occupational contact (eg, farmers, veterinarians, slaughterhouse workers) with infected animals [1].

Although each species of *brucella* has a preferred host, all can infect a wide range of animals, including humans.

Human can be infected through the intestinal tract (ingestion of infected milk) mucous membranes (droplets) and skin (contact with infected tissues of animals)[2].

The disease is characterized by : fever, GIT symptoms, headache, joint pain and Sciatica, profuse sweating, chills and rigour, cough urinary symptoms, weakness, fatigue, weight loss, depression and disorientation. the most predominant sign of the disease are splenomegaly, hepatomegaly, lymphadenopathy, neck stiffness and joint effusion[3,4,5].

The diagnosis of brucellosis is most readily confirmed by serum agglutination test, complement fixation test, slide agglutination test, milk ring test and blood culture in special media. Additionally the enzyme linked immunosorbent assay (ELISA), which is expected to be an important tool in the serological diagnosis of brucellosis [6].

Although brucellosis is being eliminated in some countries, it is prevalence has increased in most others such as southern Europe, north Africa, middle east and latin America [7].The increase in its prevalence in eastern Mediterranean countries is caused by sheep while in southern- east Asia caused by pige [5,8].

The aim of the present study is to describe the epidemiological picture of brucellosis in Salahaddin governorate from 1st of June to 31 August 2004, and to demonstrate the incidence of the disease among patients admitted to Tikrit teaching hospital during that time.

Patients and Methods:

The total number of patients included in this study was 398. 158 (39.7%) of them were male and 240(60.3%) were female. Data were collected using especially designed questionnaire which contains 6 variables such as (age, sex, occupation and residence area), and the relation of contact with domestic animals around the house or field and type of animals. All collected blood samples in this study were centrifuged and laboratory diagnosis of *brucella* was achieved using slide agglutination test (it is easy, rapid, inexpensive and available). High titer of agglutination (>1:160) confirms an acute episode and lower titer indicate earlier infection [9].If agglutination test is negative with strong clinical evidence of Brucellosis, that mean the presence of "blocking" antibodies. These can be detected by adding antihuman globulin to the antigen- serum mixture [2]. In this study significant test was performed and P values of < 0.05 were regarded as statistically significant.

Result:

Atotal of 398 patients were included in this study. Their age at time of data collection ranged between 1 year to elder than 40 years.

As shown in Table (1), there are 166 cases out of 398 were positive for *brucella* test.of them 67 (40.4%) were male, and 99 (59.6%) were female.

Table (1): The correlation between sex and *brucella* test .

Brucella **Test Results**	**SEX**		**Total NO.(%)**
	Male NO.(%)	**Female NO.(%)**	
Positive	67 (40.4)	99 (59.6)	166 (41.7)
Negative	91 (39.2)	141 (60.8)	232 (58.3)
Total	158 (39.7)	240 (60.3)	398 (100)

$X^2 = 0.05$

$P < 0.05$

Table (2) explained that the rate of incidence of Brucellosis was higher in female 99 (59.6%) than in male 67(40.4%), most male cases 34 (50.7%) were in age groups (20 -30y), while in female were 37(37.4%) in age groups (>40y). The lower rate of incidence of Brucellosis in male (4.5%) was in age groups (10-20y) and in female was (4%) in age groups (1-10y).

Table (2) : The relationship between the age and Brucellosis.

Sex	Total No .	Age				
		1-10y No. (%)	10-20y No.(%)	20-30y No.(%)	30-40y No.(%)	>40y No.(%)
Male	67	4 (6)	3 (4.5)	34 (50.7)	15 (22.4)	11 (16.4)
Female	99	4 (4)	7 (7.1)	33 (33.3)	18 (18.2)	37 (37.4)
Total	166	8 (4.8)	10 (6.0)	67 (40.4)	33 (19.9)	48 (28.9)
X^2		0.3	0.45	3	0.34	6.02
P		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Table (3) illustrates the association between the infection and residence of patients. The higher rate of infection (55.4%) was found in patients who were from rural areas.

Table (3) : The association between Brucellosis and residence **.**

Residence	**Total No. (%)**	**No.of (+ Ve) cases (%)**	**No.of (- Ve) cases (%)**
Rural	225 (56.5)	92 (55.4)	133 (57.3)
Urban	173 (43.5)	74 (44.6)	99 (42.7)
Total	398 (100)	166 (41.7)	232 (58.3)

$X^2 = 0.13$

$P < 0.05$

Table (4) showed that the higher rate of Brucellosis (51.2%) was found in patients who were animal keepers.

Finally, our results for monthly distribution of all cases during this study shown that the highest rate of Brucellosis was in July and the lowest rate was in June.

Table (4) : The correlation between infection and animal keeping.

Animal keeping	Total No. (%)	No. of (+Ve) cases (%)	No. of (-Ve) cases (%)
Keeper	178 (44.7)	85 (51.8)	93 (40.1)
Non- keeper	220 (55.3)	81 (48.8)	139 (59.9)
Total	398 (100)	166 (41.7)	232 (58.3)

$X^2 = 4.81$

$P > 0.05$

Discussion:

In the current cross sectional study, it was found that females were more affected than male, because of their major contact with animals and their products as well as they work as farmer in rural areas nowadays. This result is quite comparable to that found by Al- Sharbaaf [10], while this result differ from that found by Al –Anezy in Kuwait who found that males were more affected than females [11] .

A large proportion of cases were house wives so they are with direct or indirect contact with animals and their products, to a lesser degree other groups included farmers, students, children and employers.

Age groups of (20-30) years old were more affected with brucellosis because of their field activities. The age group (1-10) years old were less affected by brucellosis probably because they are less prone to have contact with animals. This result differ from that of Y.G. Salman and M.A. Kudeyer who found that the incidence of Brucellosis was highest among peoples over 30 years old and lowest among (1-5) years old [12] .

The present study revealed that, the higher rate of brucellosis was found in rural areas. This may be due the fact that large number of families in the rural area keep animals at or around their houses. In addition to the conception of local dairy products especially home made cheese and row milk.

People keeping their animals at or around their house are most susceptible to brucellosis because they are indirect contact with the sources of infection and their products. The results of the present investigation clarified that, the incidence of brucellosis in family members keeping animals (especially sheep and goats) was much higher than in those who not keep animals. These results are in agreement with those of Y.G. Salman [12].

According to the monthly distribution, this study showed that, the majority of cases were in July. This result is similar to that found byY. Al-Banna [13]and Y.G. Salman [12].

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نسبة حدوث حمى مالطا في محافظة صلاح الدين

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الملخص:

شملت الدراسة ٣٩٨ مريضا يعانون من اعراض الاصابة بحمى مالطا . أجريت الدراسة في مستشفى تكريت التعليمي في مدينة تكريت خلال الفترة من الأول من حزيران٢٠٠٤ وحتى الحادي والثلاثين من شهر أب لعام ٢٠٠٤. نسبة حدوث الأصابة بحمى مالطا كانت بمعدل ١٦٦ من مجموع ٣٩٨ حالة. ومن بين الحالات الموجبة، النسبة الأعلى للأصابة كانت في الأناث(٥٩,٦%). تبعا للعلاقة ما بين العمر والجنس و حمى مالطا، فأن نسبة الأصابة بحمى مالطا كانت أعلى عند الأناث ٩٩(٥٩,٦%) منها عند الذكور٦٧(٤٠,٤%)، معظم حالات الأصابة عند الذكور وهي ٣٤(٥٠,٧%) كانت في المجاميع العمرية (٢٠-٣٠) سنة، أما في الأناث فمعظم الحالات وهي ٣٧(٣٧,٤%) كانت في المجاميع العمرية الأكبر من ٤٠ سنة. النسبة الأوطأ لحدوث الأصابة بحمى مالطا في الذكور وهي (٤,٥%) كانت في المجاميع العمرية (١٠-٢٠) سنة وفي الأناث وهي (٤%) كانت في المجاميع العمرية (١-١٠) سنة . كذلك فأن الدراسة أظهرت بأن النسبة الأعلى للأصابة وجدت في المرضى الذين يعيشون في المناطق الريفية، والذين يقومون بتربية الحيوانات.