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الخطر المهني لمرض الحمى المتقطعة في الانسان في محافظة أسيوط

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تم في هذا البحث تحديد نسبة الاصابة بمرض الحمى المتقطعة
(البروسيلوزس) في الانسان في محافظة أسيوط ، وذلك بالفحص
السيرولوجي لعينات الدم باختبارى الروزنجال وتلازن المصل بالانابيب .

وقد أسفرت النتائج عن تشخيص ثمانية حالات (٦.٥ ٪) ايجابية
لهذا المرض من بين ١٥٨ عينة دم ، والتي تم جمعها من أشخاص يزاولون
مهنًا مختلفة ، وقد تراوح التتر لهذه العينات بين ٨٠ / ١ و ٢٥٦٠ / ١ .

هذا بالإضافة الى أنه قد تم تحديد ثلاث حالات (١٩ / ١) مشتبّه
في اصابتها وتراوح التتر بها بين ٢٠ / ١ و ٤٠ / ١ .

واتضح من النتائج أن أعلى نسبة للاصابة بهذا المرض كانت بين
الأطباء البيطريين (٢٠.٦٩ ٪) ، ثم العمال البيطريين (٥٨.٨ ٪) ، وتلي
ذلك الفلاحون بنسبة اصابة (٣٥.٧ ٪) .

كذلك فقد تمت مناقشة الاسس الواجب اتباعها في مقاومة هذا المرض ،
ومنع انتشاره بين الانسان .

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**OCCUPATIONAL HAZARD OF BRUCELLOSIS AMONG HUMANS
IN ASSIUT GOVERNORATE**
(With 3 Tables)

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SUMMARY

The incidence of Brucella infection among human beings in Assiut Governorate was serologically estimated.

The results of Rose Bengal Plate Test (RBPT) and tube agglutination test (TAT) of the 158 human blood sera revealed that 8 (5.06%) were positive with titres varying from 1/80 to 1/2560 and 3 (1.90%) were suspicious with a titres ranging from 1/20 to 1/40.

The highest incidence was among Veterinarians (20.69%), followed by Veterinary workers (5.88%) and farmers (3.57%).

The principals of prevention and control of brucellosis among human beings were discussed.

INTRODUCTION

Brucellosis continues to be, by far, one of the most important zoonotic diseases. The most types and biotypes of Brucella are responsible for serious illness and disturbing epidemics among population in many parts of the world especially the mediterranean area.

The incidence of the disease among human beings is directly influenced by the prevalence of the Brucella infection among the animal species. However, brucellosis is mainly an occupational hazard affecting the farm community, abattoir workers and Veterinarians (HENDERSON & HILL, 1972).

The veterinary profession is the most hazardous in terms of contracting brucellosis. KERR *et al.* (1966) found 196 (63%) out of 309 veterinarians has serological evidence of Brucella infection. SHNURRENBERGER *et al.* (1967) pointed out that 18% of veterinary surgeons and students at Illinois were serologically positive reactors. Moreover McDEVITT & McCAUGHEY (1969) recorded an incidence of 64% Brucella positive reactors among veterinary surgeons in Northern Ireland. In addition, a steady rise in the number of veterinary students with significant Brucella titres was noticed by CAYTON *et al.* (1975).

Brucella has a characteristic of wide range of infection which constitutes a real hazard to other population. Inhalation and/or ingestion of contaminated milk and milk products are the most probable routes of infection. TALUKDER *et al.* (1983) detected 8 (38%) out of 21 patients from a farm community as Brucella positive reactors. Those patients had a history of consumption of raw milk.

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Due to the major public health significance of brucellosis, the present work was carried out in order to estimate the rate of infection among human population in Assiut Governorate.

MATERIAL and METHODS

A sum of 158 blood samples were aseptically collected from human beings in Assiut area. Their distribution was as follows: 29 veterinarians, 17 veterinary workers and 112 in-patients admitted to the Infectious Diseases Hospital at Assiut City. Those patients included 28 farmers, 25 house holders and 59 of other professions.

Sera of the collected blood were subjected to Rose Bengal Plate test (RBPT) and tube agglutination test (TAT)

1. Rose Bengal Plate Test (RBPT)

The technique adopted by MORGAN *et al.* (1978) was conducted. The used antigen was prepared and standardized in the Central Veterinary Laboratory (CVL) in Wybridge, Britain. Any degree of agglutination was considered as positive reaction.

2. Tube Agglutination Test (TAT)

The test was performed following the techniques of MORGAN *et al.* (1978). The antigen was also prepared and standardized in CVL in Wybridge, Britain. The antigen was diluted 1/10 in phenol saline as it usually issued as a concentrate. The titre of the serum was considered as the highest dilution giving a definite (1+) reading or more.

RESULTS

The results are tabulated in Table 1,2 and 3. The results of RBPT and TAT of the 158 human sera revealed that 8 (5.06%) were positive with titre varying from 1/80 to 1/2560, 3 (1.90%) suspicious and 147 (93.04%) were negative.

The highest incidence of *Brucella* positive reactors was among veterinarians (20.69%) followed by veterinary workers (5.88%) and Farmers (3.57%). On the other hand, no positive reactors detected among the other occupations.

DISCUSSION

Brucellosis among human beings has received an intensive investigation in the last few years by many workers all over the world. However, it was a period of over-enthusiasm during which it was falsely concluded that sufficient knowledge was available to detect and eliminate the disease among animals and man (NICOLETTI, 1980).

The results of the serological examination of the 29 veterinarians in the present work revealed that 6 (20.69%) were *Brucella* positive reactors, with titres ranging from 1/80 to 1/2560 and 2 (6.90%) were suspicious with a titre of 1/40. Those veterinarians are practicing in different Animal Care Centers including El-Moteah, El-Hawatka, Rifa and Gehana. All the positive reactors were suffering from typical symptoms of brucellosis which proceeded by handling of cases of abortions and placental retention among cows and buffaloes.

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Only one (5.88%) out of 17 veterinary workers was *Brucella* - positive reactor with a titre of 1/80. Such rate of infection among those workers can be tolerated on the basis of their careless handling of infected animals, carcasses and abortion materials.

The serological testing of the 28 farmers, admitted to the Infectious Diseases Hospital, with febrile symptoms, revealed that one (3.57%) of them was *Brucella* positive with a titre of 1/160 and another one (3.57%) was suspicious with a titre of 1/20. The detection of *Brucella* infection between those farmers reflects the actual hazard of being in close contact with infected animals and contaminated surroundings.

In regard to the extent of *Brucella* infection among other population, it was found that all the 84 blood sera collected from house-holders and other occupations admitted to the Infectious Diseases Hospital were serologically negative reactors. This gives a further support that the disease is primarily an occupational hazard and the infection can mostly be contracted through the unsafety handling of infected animals and contaminated materials (MEYN *et al.* 1960).

The role of milk as a source of *Brucella* infection among population can not be ignored. However, not all the infected cows disseminate the organisms in their milk as it was concluded by LEECH *et al.* (1964) who pointed out that only 2.7% cows out of an infected herd were shedding *Brucellae* in their milk.

Therefore any planned program for eradication of brucellosis has to involve, not only the farming community but also the human population as a whole. Cases of abortions and placental retentions among farm animals must be isolated and handled with care by professional veterinarians. Moreover, periodical screening of farm animals by serological testing will be of a great importance for the early detection of infected animals and the control of the disease. Vaccination of young animals may be tried to reduce the rate of infection among animal population and consequently among human population.

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Table (1): Results of the Rose Bengal Plate test (RBPT) on human blood sera

Occupation	No. of Samples	Positive reactors	
		No.	Frequency %
Veterinarians	29	6	20.69
Veterinary workers	17	1	5.88
Farmers	28	1	3.57
House-holders	25	-	-
Others	59	-	-
Total	158	8	5.06

Table (2): Results of tube agglutination test (TAT) on human blood sera

Occupation	No. of Samples	Reactor		Titre							
		Positive	Doubtfull	1/20	1/40	1/80	1/160	1/320	1/640	1/1280	1/2560
Veterinarians	29	6	2	-	2	1	1	2	1	-	1
Vet. workers	17	1	-	-	-	1	-	-	-	-	-
Farmers	28	1	1	1	-	-	1	-	-	-	-
House-holders	25	-	-	-	-	-	-	-	-	-	-
Others	59	-	-	-	-	-	-	-	-	-	-
Total	158	8	3	1	2	2	2	2	1	-	1

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Table (3): Number and Frequency percentage of Positive, doubtfull and negative human reactors

Occupation	No. of Samples	Positive		Doubtfull		negative	
		No.	%	No.	%	No.	%
Veterinarians	24	6	20.69	2	6.90	21	72.41
Vet. workers	17	1	5.88	-	-	16	94.12
Farmers	28	1	3.57	1	3.57	26	92.86
House-holders	25	-	-	-	-	25	100
Others	59	-	-	-	-	59	100
Total	158	8	5.06	3	1.90	147	93.04

