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A PRELIMINARY STUDY ON BRUCELLOSIS ON CAMELS AT BEHIRA PROVINCE

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ABSTRACT :

In this study766 blood samples were collected, 679 from camels before slaughtering and 87 samples from contact camels with farm animals.

The different serological tests indicated percentages of seroreactors in Rose Bengal test, Buffered acidified plate test, Tube agglutination test, Mercaptoethanol test, Rivanol test, and Enzyme immunosorbant assay test were, 8.74, 9.53, 9.92, 8.09, 8.87, and 9.26 % respectively.

The high incidence according the number tested may be due to many factors such as:

1-Escaping of some imported positive reactors during quarantine measures,

2-Lacking of a national program for eradication including periodical testing and slaughtering of reactors.

3-Absence of a vaccination program for camels according to Egyptian field strains and which proved with imported camels.

At the same time this study throw a strong light on that camels should be included in the national program for control and eradication of brucellosis in Egypt, especially, this disease could be transmitted from animals or their products to human.

INTRODUCTION:

Camels possess an economic importance especially among Egyptian farm animals in Egypt as well as, in several other countries allover the world. In Egypt their numbers were estimated as 102327 camels (GOVS, 1998), they nowadays are considered as one of the main sources of animal protein in some provinces in Egypt. Control and eventual eradication of brucellosis depends upon strict implementation of a test and slaughter program combined with massive vaccination of the susceptible population. In Egypt this policy is applicable only for cattle, buffaloes, sheep and goats whoever camel brucellosis was recorded in Egypt by many authors with variable incidence as 10.92% by Hamada *et al*, (1963), 2% El-Nahas (1964), 8.3% Fayed *et al* (1982), 7.9% Nada(1990), 10.7% Barsoum *et al* (1995).

Camels could play a role in transmission of brucellosis to farm animals beside the public health significance.

The aim of this study is to screen the incidence of brucellosis in camels on Behira province through:

1-Determination of brucellosis among slaughtered camels and some kept in close contact with other animals.

2-Evaluation of the efficiency of serological tests (Rose Bengal test, Buffered acidified plate test, Tube agglutination test, Mercaptoethanol test, Rivanol test, and Enzyme immunosorbant assay test (ELISA) used in this study for detection of brucellosis in camels.

MATERIAL AND METHODS :

1-samples

A total number of 766 camel serum samples were collected for serological examination, 679 from slaughtered animals at abattoirs and 87 samples from contact camels with farm animals.

2-Antigens:

Rose Bengal plate antigen, buffered acidified plate antigen, tube agglutination antigen, Rivanol antigen were supplied by Veterinary sera and vaccine research institute, Abbassya, Egypt.

Methods :

1-Rose Bengal plate test,-tube agglutination test, -Rivanol test and Mercaptoethanol test were carried out according to Alton *et al.*(1988)

2-Buffered acidified plate test, was carried out according to (N.V.S.L. Ames, Lowa,1984)

3-Enzyme linked immunosorbant assay (ELISA): using a commercial coated plates supplied by IDEXX company, ELISA Staph. protein A peroxidase conjugate, and orthophenyle diamine "OPD" substrate, the test was carried out according to Voller *et al* (1979) and Alton *et al.*(1988).

RESULTS:

The number of positive reactor serum samples obtained from slaughtered camels (n=679) in some abattoirs of Behira province are illustrated in table (1). By using Rose Bengal test (RBT), and Buffered acidified plate test (BAPT) it recorded 8.68% and 9.42% respectively while Tube agglutination test (TAT), Mercaptoethanol test (ME), Rivanol test (Riv. T), and Enzyme immunosorbant assay test (ELISA) recorded 9.57%, 8.10%, 8.89 %, and 9.13% respectively.

Samples collected from camels in close contact with farm animals (n=87) revealed a positive reaction of 9.19% and 10.3% for RBT and BAPT while it was 12.6%, 8.04%, 8.04%, and 10.30% for TAT, ME, Riv. T, and ELISA respectively

Table (1): Seroprevalence of brucellosis among camels on Behira province based on different serological tests

Animal	RBT		BAPAT		TAT			MET		RIv		ELISA	
	+Ve	%	+Ve	%	+Ve	+Ve	%	+Ve	%	+Ve	%	+Ve	%
S.C (N= 679)	59	8.68	64	9.42	60	5	9.57	55	8.10	61	8.98	62	9.13
C.C (N=87)	8	9.19	9	10.3	8	3	12.6	7	8.04	7	8.04	9	10.30
Total (N=766)	67	8.74	73	9.53	68	8	9.92	62	8.09	68	8.87	71	9.26

S.C= Slaughtered camels

C.C= Camels contact with farm animals

DISCUSSION :

Brucella infection in farm animals is considered a great problem in most countries of the world. thus, the early detection of Brucella infection in a herd or flock is a pre-request for the successful control and elimination of one of the major problems considered to be a predisposing factor leading to infertility and sterility along with the possible transmission of infection to man (FAO/WHO, 1986 and Wasseif,1992). Brucellosis in camels has been reported in Saudi Arabia, Kuwait, Oman, Iraq, Iran, Sudan, Egypt, Libya and Somalia. It has been reported even in racing camels in the United Arab Emirates. Brucella melitensis biovar 3 is the most commonly isolated species from animals in Egypt, Jordan, Israel, Tunisia and Turkey. B. melitensis biovar 2 was reported in Turkey and Saudi Arabia, and B. melitensis biovar 1 in Libya, Oman and Israel. B. abortus biovar 1 was reported in Egypt, Most human cases are caused by B. melitensis, particularly biovar 3 Vaccination is limited to cattle and small ruminants (Refai, 2002).

In this study 2 screening tests(RBT & BAPT) were performed in abattoirs before slaughtering, they revealed an incidence of 8.68% and 9.42%. BAPT detected higher reactors than RBT, this may be ascribed to the fact that the test is more sensitive in detection of IgM as well as IgG immunoglobulin (Stemshorn *et al.*, 1985) it could also depend on the amount of serum used in this test which is more than the amount of serum used in RBT, beside the pH 3.6 of the RBT allow less amount of IgM (Alton *et al.*, 1976).

Four confirmatory tests were used, (Table 1), (TAT, MET, Riv. T and ELISA) indicated seroreaction of 9.57%, 8.10%, 8.89%, and 9.13%, the higher reactions were recorded for TAT and ELISA followed by Riv. T respectively. The majority of camels slaughtered in Egypt are coming from neighboring countries, which will be a mode of transfer of infection if they have the micro-organisms. In Sudan average incidence of camel brucellosis was 6.95 % (Yagoub *et al.*, (1990), and 1.9% (Baumann and Zessin,1992), in Somalia while it was 3.1 in Ethiopia(Teshome *et al* 2003)

Concerning the contact camels with farm animals (table1) the seroprevalence were 9.19%, 10.3, 12.6%, 8.04%, 8.04% and 10.3% for RBT, BAPT, TAT, ME, Riv.T, and ELISA test which is higher than that reported in slaughtered ones. This reflect the real situation of brucellosis among the contact farm animals which pay the attention to study the role of camels in transmitting brucellosis to other farm animals and vice versa.

The overall incidence of brucellosis in camels tested in this study using the deferent serological tests (Table1) recorded higher detection by the screening test BAPT (9.53%), and TAT (9.92%), Riv.T(8.87, ELISA (9.26) as confirmatory tests which pay attention that BAPT can be used as a screening test and TAT, Rivanol as confirmatory tests while ELISA can be used in massive testing programs if present.

According to the available literature, Sharkia Governorate recorded an incidence of 8%, Kaliobia 4%, and Dakahlia 6% (Barsoum *et al*, 1995). While in the present study Behira province recorded an incidence of 8.74%, 9.53%, 9.92%, 8.09%, 8.87 and 9.26% with RBT, BAPT, TAT, ME, RIV.T, and ELISA test, which is a truly high incidence according the number tested, that may be due to many factors such as:

1-Escaping of some imported positive reactors during quarantine measures.

2-Lacking of a national program for camel brucellosis eradication including periodical testing and slaughtering of reactors.

3-Absence of a vaccination program for camels according to Epyptian field strains and which proved with imported camels.

At the same time this study throw a spot light to include camels in the national program for control and eradication of brucellosis in Egypt as the base that where brucellosis exists in stock animals, the disease resemples an occupational hazrd for veterinarians, far workers, abattoir workers as well as laboratory workers (Madkour, 1992). More over there is public health hazards and high-risk human other than occupational contacters through consumption of milk or milk products of seropositive animals(Shelling *et al*,2003)

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دراسة مبدئية عن البر وسيلا فى الجمال فى محافظة البحيرة

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مدير معمل بحوث صحة الحيوان بدمنهور – محافظة البحيرة

فى هذه التجربة تم تجميع عينات دم من عدد ٧٦٦ جمل من محافظة البحيرة منها ٦٧٩ عينة من الجمال قبل ذبحها وعدد ٨٧ من جمال مخالطة لحيوانات المزرعة. وقد أظهرت الاختبارات السيرولوجية المختلفة، وهى : اختبار الروز بنجال، إختبار التلبد التشريحى المحمض، اختبار التلبد الأنبوبى، إختبار الميركابتوإيثانول، اختبار الريفانول، اختبار الإليزا إيجابية: ٨,٧٤%، ٩,٥٣%، ٩,٩٢%، ٨,٠٩%، ٨,٨٧%، ٩,٢٦% على الترتيب.

وقد ارجع الباحث زيادة النسبة إلى عدة عوامل هى :

١- دخول بعض الحالات الإيجابية من المنافذ البرية.

٢-الافتقار إلى مشروع قومى للتخلص من البروسيلا فى الجمال.

٣- عدم وجود برنامج تحصين للجمال يأخذ فى الاعتبار العترات المعزولة محلياً بجانب المعزولة من الجمال المستوردة .

سلطت نتائج الاختبارات السيرولوجية الضوء على ضرورة وضع الجمال ضمن برنامج مكافحة البروسيلا فى مصر، خاصة وأن هذا المرض يعد من أهم الأمراض المشتركة التى تنتقل من الحيوان أو منتجاته إلى الإنسان.