DETECTION OF TOXOPLASMOSIS AMONG ABORTED WOMEN AT THI-QAR PROVINCE [+]

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Abstract:

In this study was detection *Toxoplasma gondii* infections among different groups of aborted women during gestational age, 126 patients were tested undergoing repeated abortion.

The most affected women fall in the young females less than 40 years of age (92.85%).Rural residence was associated with a slightly higher rate of positive toxoplasma antibody (53.17%) compared to urban residence (46.82%). Similarly a positive history of animals contact was a high rate (70.73%) compared to those no history of animal contact (29.36%). The educational level and having a positive history of abortion had no statistically significant association with the risk of having toxoplasma antibodies.

Suspected patients were divided into three groups, females with first trimester abortion , second trimester abortion and preterm labor , showed positional by two serological tests : Latex agglutination test and indirect fluorescent antibody test .The highest rate of abortion was observed in the women at the first trimester of pregnancy (59.52%).

المستخلص:

في هذه الدراسة تم الكشف عن داء المقوسات ضمن مجاميع مختلفة من النساء المجهضات خلال فترة الحمل، تم اختبار ١٢٦ مريضه تعاني من الاجهاض المتكرر.

النساء الاكثر تأثيرا بالاسقاط هن النساء الشابات اللواتي لا تتجاوز اعمارهن عن ٤٠ عاما وبنسبة ٩٢,٨٥% ،اما السكن في المناطق الريفية كان مقترننا بمعدل اعلى قليلا من الجسام المضادة وبنسبة ٥٣,١٧% مقارنة الى السكن في المدينة (٤٦,٨٢%) ، وكذالك التلامس مع الحيوانات المنزلية كان عاليا (٧٠,٧٣%) بالمقارنة مع الغير ملامسات للحيوانات (٢٩,٣٦%) . المستوى التعليمي لم يكن ذو تاثير معنوي بالنسبة للاصابة بداء المقوسات .

المريضات المجهضات قسمن الى ثلاثة مجاميع :المجموعة الاولى المجهضات خلال الثلاثة الاشهر الاولى ، المجموعة الثانية المجهضات خلال الثلاثة الاشهر الثانية والمجموعة الثالثة النساء ذوات الولادات المبكرة (المسبقه). بموجب اختبارين هما فحص التلازن وفحص الاجسام المناعية المتفلورة .المعدل الاعلى للاجهاض عند النساء الحوامل خلال الثلاثة الاشهر الاولى من الحمل (٥٩,٥٢%) .

Introduction:

[+] **Received on 2007/3/19 , Accepted on 2008/11/18**

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Toxoplasma gondii is an obligate intracellular parasite commonly infecting a variety of mammals including rodents, domestic house cats, and humans. Infection occurs through ingestion of undercooked meat, exposure and /or transplacental transmission from acutely infected women to her fetus [1].

Toxoplasmosis, a common parasite zoontic infection is usually asymptomatic in immunocompetent person although it may be present as lymphoadenopathy, febrility, etc. but it is a life threatening opportunistic infection in congenitally infected patients and in immunocompromised individuals (those with AIDS, malignancy, organ transplantation, etc)[2].

T.gondii is very common in cat feces, raw meat, raw vegetables and the soil ,it can get into your body when your breath in dust ,it does not seem to spread from person to person [3].The most common illness caused by *T.gondii* is an infection of the brain (encephalitis),can lead to coma and death [4].

The risk of it is highest when your T.cell counts are below 100.This parasitic has the ability to cross the placenta to the fetus during pregnancy causing congenital toxoplasmosis [5].

Most primary in immune competent a dust are asymptomatic[6].But acute from disease presents as fever, headache, fatigue, lymphadenitis, chills, malaise, high sweats, sore throat, rarely the symptoms develop with myocarditis, encephalitis, hepatitis, and pneumonia[7].

T.gondii is the most serious results of infections and occurs when another contracts the infection during pregnancy, the organism can causes abortion of the fetus or can cause several malformation at birth, if the women is already infected prior to conception there is a little dander but the greatest risk of congenital toxoplasmosis occurs during the first trimester of pregnancy [8].

Lappalainen and Hedman [9] reported that congenital infection results from maternal primary infection during pregnancy, the rate of "mother-fetus transmission" increases with gestational age from 20% to 70%.

Maternal toxoplasmosis infection can be successfully treated with antibiotic medication, early identification and treatment can reduce the chance that the fetus will become infected, if the fetus has already become infected, treatment with other medications will make the fetal disease less severe.

However, treatment may not prevent effects in the baby; treatment during the first year of life may also be helpful [10]. There are many diagnostic techniques used for identification of toxoplasmosis infection: isolation of the parasite, microscopic examination and serological diagnosis [11].

The aims of this study are to estimating the Toxoplasmosis in the women at Al-Nasseria province and effect the infections for abortion.

Patients & methods:

*Groups of patients:

This study was done in Al-Nasseria maternity and children hospital, 126 women (their age in 16-45 years) with history of abortion. Two blood samples were obtained from all patients (first one after abortion and the second after one month of treatment) and examined by the latex agglutination test [12,13]. The positive results referred to the blood bank in Al-Jamhory hospital were indirect fluorescent antibody test (IFAT) [14].

*Collection of the blood samples:

Three ml of blood samples were collected from women with history of abortion, the sample then put in a conical centrifuge test tube , allowed to clot at room temperature for about 15-30 min. the serological methods were used for the purpose of checking the collected serum sample, these were latex agglutination test and indirect fluorescent antibody test (IFAT)[8].

Statistical analysis was done using t-test, Chi-square test, and P value more than 0.05 is considered statically significant.

Results &Discussion:

The results presented in this study were based on the analysis of data from the samples, a total of 126 pregnant women who were referred to the laboratory for serological test of toxoplasmosis.

The majority of patients were young females less than 40 years of age (92.85%) the remaining 7.15% were older than 40 years of age; all the subjects were females in the reproductive age group, their ages ranged between 16-45 years. About a half of study sample were from rural areas (53.17%), a history of animals contact was reported in (70.73%) of cases.

About 70.73% of the study samples were illiterates, while those with a vocational diploma or college degree constituted (9.52%) of cases (table 1), there is no significant differences between them (P>0.05), an this the result is similar with results of Falih[15] and Mohammed& Al-Nasiry [16].

In the sera epidemiological survey, Zamorano *et al.* [17] which showed no differences between urban and rural inhabitants in prevalence of toxoplasma antibodies.

Mohammed and Al-Nasiry [16], those found the seropositive rate (23.3%) using IFAT.We observed that the seropositivite for toxoplasmosis increases (23.80%) with youngest age group (<30 years), followed by those with age of 30-39 years(11.90%), then the rate of positivity was lowest (1.58%) in the oldest age group 40+ years, there is no significant differences between them (P>0.05) (table2).

This observation may be attributed to high fertility rate at those groups were at affecting the risk of having toxoplasma antibodies, these finding were in agreement with those recorded by many researchers [16,18].

Table 1: Frequency distribution of the study sample by sociodemographic variables

Age in years	No.	%
<30	78	61.90
30-39	39	30.95
40+	9	7.14
Range (16-45)		
Residence		
Rural	67	53.17
Urban	59	46.82
History of frequency or close animal contact		
Yes	89	70.83
No	37	29.36
Educational level		
Illiterate	57	45.23
Primary school	17	13.49
Intermediate school	21	16.66
Secondary school	19	15.07
Vocational / college	12	9.52
Total	126	100

P>0.05

Table 2: The positively rate of toxoplasma antibody by selected independent variables .

		Positive final diagnosis of toxoplasma Ab*	
	Total No.	No.	%
Age in years			
<30	78	30	23.80
30-39	39	15	11.90
40+	9	2	1.58
Residence			
Rural	67	27	21.42
Urban	59	20	15.58
History of frequent or animal contact			
Yes	89	34	26.58
No	37	13	10.31
Educational level			
Illiterate	57	9	7.14
Primary school	17	5	3.96
Intermediate school	21	14	11.11
Secondary school	19	12	9.52
Vocational/college	12	7	5.55

P>0.05

*note: serum positive by both latex & IFAT .

Table 3: Frequency distribution of the study sample by reasons for Physicians request of toxoplasma test

Reason for physician request of the test	No.	%
First trimester abortion	75	59.52
Second trimester abortion	32	25.39
Preterm labor, normal pregnancy	13	10.31
Preterm labor with congenitally abnormal fetus	4	3.17
Preterm labor with dead fetus	2	1.58
Total	126	100

P<0.05

The highest proportion of cases were female with a history of first trimester abortion (59.52%) , cases with a history of second trimester (25.39%), there is significant differences between them (P<0.05), abortion ranked second in order of magnitude among the reasons for ordering the toxoplasma test , the finding of a dead fetus of congenital abnormalities in a preterm labor was the indication of the test in 4 cases (3.17%) ,only 13 cases (10.31%) females had a premature parturition uneventful pregnancy . This observation agrees with the work of Abdul-Ridha [18], through the observation we recorded the greatest risk of congenital toxoplasmosis occurs during the first trimester of pregnancy.

A total of 126 pregnant women with history of abortion were 68 cases (53.96%) using latex agglutination test and 47 cases (37.30%) by IFAT. This is agreement with Al-Timimi [19] (table 4)

Table 4: comparing the positivity rate of toxoplasma antibodies by two serological definition

Latex test			Final diagnosis of Toxoplasma by both Latex & IFAT	
	No.	%	No.	%
Positive	68	53.96	47	37.30
Negative	58	46.03	79	62.69
Total	126	100	126	100%

P>0.05

In the present study the diagnosis of toxoplasma antibodies were established by having a positive IFAT was considered as 100%, specific since it excluded some of the sera that tested positive when screened by latex test alone. Combination was made for its used in detecting IgM antibodies as a routine screening procedure in an fantail care to anticipate primary acute toxoplasma instead of chronic toxoplasmosis which is not a cause of habitual or recurrent abortion, this last remark it important to raise in the increasing number of abortions is not associated with a higher risk of having positive toxoplasma antibodies [19].

Because of its high sensitivity (which was assumed to be 100%)in the presence study , latex test is frequently used in surveys to screen for IgG toxoplasma Abs (chronic toxoplasmosis) among women of child bearing age with bad obstetrical

history [17],the specificity of latex test in present study was 73.41% , another study concluded that latex agglutination test weakly positive results for IgG toxoplasma Abs are not confirmed by more specific test this finding was based on animal study (pigs and cats) [20,21].

Antibodies to toxoplasma were first detected by the latex test , which showed a positivty rate of 53.96% in the over all study sample .This rate was significantly lower (37.30%) when a more strict criteria for the definition of the presence of toxoplasma antibodies , which is positive by both latex test and a more specific test (IFAT), table (4).

Latex test showed a specificity of 73.41%, the other hand the test was assumed 100% sensitive. Table (5).

Table 5: Latex test validity parameters in the diagnosis of toxoplasma antibodies in a high risk sample of pregnant females.

	Final diagnosis of toxoplasma Ab by both latex & IFAT		
Latex test	+ve	-ve	Total
Positive	47	21	68
Negative	0	58	58
Total	47*	79**	126

P>0.05

*Sensitivity=100% **Specificity=73.41%

Toxoplasma antibodies were detected by tow serological test, the latex agglutination test which a rapid and simple test in the diagnosis of toxoplasma, positive cases in this test should be confirmed by IFAT [11], the high positive results of latex test used to screen for IgG toxoplasmosis antibodies need for the validation because of high false positive which occurs.

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