

Toxoplasmosis And Its Effect On Pregnant Women Attending Hospitals In Babylon Province , Iraq

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Abstract

A total of three hundred and seventy four pregnant women attending hospitals in Babylon province were examined for detection of toxoplasmosis , during period from Nov2020 till June2021. Out of 374 examined , thirty-one found infected (8.29%) . Result exhibited no significant differences in rate of infection among months of the study . From 31 infected women , eleven were aborted fetus (35.5%) , during 2-7 months of pregnancy , Other twenty women were 11 (35.5%) born malformation infants and 9 (29%) born intact infants. According to ages , category 40-49years old , show high effect , since50% aborted fetus and 50% born defected infants . In concern to habitat , rural patients show slight increasing of infection (8.8%) than urban (8%) . The study ensure that cats were the main source of infection , since24 of infected women (77.4%) were direct or indirect contact with cats . Only 4 (36.3%) of eleven women with history of previous abortion , were aborted for the second time

Keyword : *(Toxoplasmosis , pregnant women , Babylon).*

evaluated the risk of infection on human and animals in Iraq (Niazi,A *et al*, 1976,Niazi,A*et al*, 1988 , Salih,H*et al*, 2011 , Kadhim,R*et al*, 2013 , AlMaamori,S*et al*, 2014 , Mahmood,A*et al*, 2014 , AlGharrgholi,N*et al*, 2015). Our study aimed to throw light on present epidemiological aspects of toxoplasmosis in Babylon province.

Material and Methods

Study group

Serum specimens obtained from a total number of 374 pregnant women , the category of the study group was 20-49 years old , eleven of the study group was with previous abortion

Assessment of epidemiology

A questionnaires sheet was designed to assess some of risk factors that influence the prevalence of the parasite . These factors include , owning cats , previous abortion , residence and age of pregnant women

Specimens

Blood samples was collected from study group for the period from Nov2020 _ June2021 . Blood was collected in labeled 5ml tubes , stored at 4 C° for 24 hours , then sera

Introduction

Toxoplasmosis is one of protozoan and world-wide distribution zoonotic disease (Jakson,M.H*et al*, 1989) . the disease consider important in public health aspect , found in both human and animals (Yang,H.I *et al*, 2000) . the disease cause abortion or congenital abnormalities on its intermediate hosts especially human (Fernanda,S*et al*, 2010) . The continuous epidemiological studies of toxoplasmosis consider essential because ,first , the parasite can cause dangerous effect , such as ,abortion , encephalitis , myocarditis and pneumonia (McAllister,M*et al*, 2005) . Second – the high estimated cost of the infection among animals such as cost of aborted fetus and vaccines used against the parasite (Scott,R*et al*, 2007).Many previous studies found that toxoplasmosis can increase and change personality factors in males and females (Fleger,J*et al*, 2007). Its suggested that sexual hormones changes can play an important role in relation with infection (Kankova,S*et al*, 2011) .*Toxoplasma gondiis* an endemic disease in Iraq , since (Najim,A*et al*, 1996) , in the 60s of 19th century , found 20.5% of the aborted women were positive for toxoplasmosis . Since that date till now , tens of epidemiological studies were done to watching epidemiological map of parasite and

Results

Out of total sera tested , thirty one found positive (8.29%). In concern of infection with season , there was no significant differences (Table 1)

Category 40-49 years, show high pathogenic effects , since 50% aborted fetus , while the other 50% born misshape infants (table2)

According to residence , slight differences in rate of infection was exhibited between rural and urban (8.8% - 8% respectively). The present study concluded that owning cats have high effect on increasing the infection , because 68.4% and 97.7% of the infected women in urban and rural respectively were owning cats . (Table 4)

Previous infection with parasite play important role to decrease the pathogenic effects , only 4 pregnant women (36.3%) aborted for the second time (table 5)

Table 1 : Prevalence of toxoplasmosis among pregnant women according months of the study

Months	No.examined	No.infected	%
Nov 2020	60	5	8.3 ns
Decem	54	4	7.4 ns
Jan 2021	43	3	7 ns
Feb	47	4	8.5 ns
March	39	3	7.7 ns
April	44	4	9 ns
May	48	5	10.4 ns
June	41	3	7.7 ns
Total	374	31	8.29

ns= no significant

Table 2 : Prevalence and effects of toxoplasmosis among pregnant women according to ages

Category	No. infected	%	No. aborted	%	No. born intact	%	No. born with defect	%
20-29	13	41.9	3	23	5	38.5	5	38.5
30-39	12	38.7	5	41.7	4	33.3	3	25
40-49	6	19.4	3	50*	0	0	3	50*

separated by centrifuge and stored in 0.2 ml aliquots at -20 C° till testing

Laboratory testing

Sera were tested by latex agglutination , each specimen tested by dilutions 1:20 and 1:40 (Holliman,Ret al, 1990).

- 1-Allow reagents to reach room temperature
- 2- Put 30µl of diluted serum in one section of the slide
- 3- Reagents and serum shacked well, then one drop added to each drop of serum
- 4-Reagents and serum mixed well by strier
- 5- Slides rotate for 5 minutes on rotary shaker set at 100 rpm
- 6- Specimen considered positive or negative due to presence or absence of agglutination .

Statistical analysis

Chi-square and t-test used to analyze the data (SAS , 2012).

Total	31	8.29	11	35.5	9	29	11	35.5
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*= P<0.05

Table 3 : Prevalence of toxoplasmosis among pregnant women according to habitat

Habitat	No. examined	No. infected	%
urban	236	19	8
rural	138	12	8.8ns
Total	374	31	8.29

ns= no significant

Table 4 : Prevalence of toxoplasmosis among pregnant women according to presence or absence of cats

Habitat	No, infected	Cat presence	%	Cat absence	%
urban	19	13	68.4	6	31.6
rural	12	11	91.7	1	8.3
Total	31	24	77.4**	7	22.6

**= P<0.01

Table 5 : Percentage of pregnant women with previous abortion and aborted for second time

No. previous abortion	No. have new abortion	%	No. born intact	%	No. born with defect	%
11	4	36.3	5	45.5	2	18.2

Our study not exhibited significant differences between rate of infection in urban and rural provinces, this due to owning cats in both two above provinces . We find that owning cats in homes consider the main source of infection with toxoplasmosis , because results find significant differences in rate of infection between pregnant women those who owning or not owning cats in both urban and rural areas. Results of the study come in agreement with some previous studies that considered advanced ages as an important risk factor , that play role to increase pathogenic effect of infection (Eleyi, *Het al*, 2010 , AlJumaili, *Zet al*, 2015).

Some studies discuss that previous infection with *Toxoplasma gondii* , may be decrease its pathogenic effects on patient , such as decrease

Discussion

The present study is one of few studies in Babylon to detect prevalence of *Toxoplasma gondii* infection in immune-competent hosts who are pregnant women .The seroprevalence of parasite obtained in the study (8.29%) considered low comparable to previous studies in Iraq , that recorded rate of infection 20-90% (Niazi, *Aet al*, 1988 , Salih, *Het al*, 2011 , Kadhim, *Ret al*, 2013 , AlMaamori, *Set al*, 2014 , Mahmood, *Aet al*, 2014 , AlGharrgholi, *Net al*, 2015, AlRamahi, *Het al*, 2005, Khalil, *Het al*, 2008) , this may attributed to increase health awareness among society or due to development of health care in health institutions.

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abortion cases and minimized or prevent congenital malformation (Zagar,Aet al, 1998 ,Zagar,Aet al, 1999).The current study exhibited same above results , since abortion and misshape infants were low in previous infected women comparable to those who infected for the first time.

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