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Assessment of Toxoplasmosis among Aborted Women in Al-Najaf Al-Ashraf province

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Abstract : Toxoplasmosis is an important public health disease specially in our country Toxoplasmosis is usually spread by eating poorly cooked food that contains cysts, exposure to infected cat feces, and from a mother to a child during pregnancy if the mother becomes infected. Rarely the disease may be spread by a blood transfusion. Reviews of serological studies have estimated that 35–50% of the global population has been exposed to and may be chronically infected with toxoplasmosis, although infection rates differ significantly from country to country.

Introduction

Toxoplasmosis : is a parasitic disease caused by Toxoplasma gondii.(1) Infections with toxoplasmosis usually cause no symptoms in adult humans.(2) occasionally there maybe a few weeks or months of mild flu-like illness such as muscle aches and tender lymphnodes. In a small number of people, eye problems may develop. In those with a weak immune system, severe symptoms such as seizures and poor coordination may occur. If infected during pregnancy, a condition known as congenital toxoplasmosis may affect the child(3). Toxoplasmosis is generally transmitted through an oral route, by accidentally ingesting toxoplama gondii cysts, but can be transmitted congenitally, passed from mother to fetus through the placenta.(4)

Oral transmission may occur through :Ingestion of raw or partly cooked meat, especially pork, lamb, or venison containing Toxoplasma cysts Infection prevalence in countries where undercooked meat is traditionally eaten has been related to this transmission method. Tissue cysts may also be ingested during hand-to-mouth contact after handling undercooked meat, or from using knives, utensils, or cutting boards contaminated by raw meat.(5)

Cats excrete the pathogen in their feces for a number of weeks after contracting the disease, generally by eating an infected rodent. Even then, cat feces are not generally contagious for the first day or two after excretion, after which the cyst 'ripens' and becomes potentially pathogenic.(8)

Pregnant women should avoid handling raw meat, drinking raw milk (especially goat milk) and be advised to not eat raw or undercooked meat regardless of type.(9) Because of the obvious relationship between Toxoplasma and cats it is also often advised to avoid exposure to cat feces, and refrain from gardening (cat feces are common in garden soil) or at least wear gloves when so engaged.(9) Most cats are not actively shedding oocysts, since they get infected in the first six months of their life, when they shed oocysts for a short period of time (1–2 weeks.)(10) However, these oocysts get buried in the soil, sporulate and remain infectious for periods ranging from several months to more than a year

(47) Numerous studies have shown living in a household with a cat though living with several kittens has some significance.[13]

In 2006, a Czech research team[14] discovered women with high levels of toxoplasmosis antibodies were significantly more likely to have baby boys than baby girls. In most populations, the birth rate is around 51% boys, but women infected with T. gondii had up to a 72% chance of a boy.[15][16] In mice, the sex ratio was higher in early latent toxoplasmosis and lower in later latent toxoplasmosis.

Objectives:

1. To identify the relationship between all characteristics of aquestionnaire and the infected cases of toxoplasmosis that led to an incidence of abortion in pregnant women.
2. To review the prevention, diagnosis, and management of toxoplasmosis in pregnancy.

Methodology

The study were conducted between November 2015 until March 2016 by collection the data of a hundred pregnant woman randomly from AL Zahraa and AL-Hakeem obstetrics Hospitals according to a structured questionnaire that included socio – demographic information that consist of age, age at marriage, occupational status, educational level, type of family, socio economic status, contact with animals, reproductive variables, number of gravities, number of parity gestational age and the medical information which includeBlood group,history of abortion, history still birth, history of neonatal death, History of low birth weight, history of congenital anomalies, complication during pregnancy, investigation, previous diagnosis for Toxoplasmosis and behavioral information that contain having information of Toxoplasmosis,visit to doctor and the way of visits (regular, irregular, in need).

The approvals of research ethics committee were taken and the acceptance of Al-Hakeem and Al-Zahra hospitals authority was also gained verbal consent of participants was taken as well.

Pilot study

The pilot study was carried out at Al-Sadr Teaching hospital during the period from 1st of October to 1st of November 2015. It was conducted on (10) women, the pilot study was performed to stabilize the questionnaire according to the current research environment and to enhance the reliability and validity of the main study. The sample of pilot study was excluded from the present study sample.

Data collection methods and tools

A) Using questionnaire: Ethical Approval has been obtained from all women. Researchers interviewed each subject for 15-20 minutes. The women were cooperated with researchers through given their answers about questions that included in self-reported questionnaire. A questionnaire sheet was designed to assess some of the main risk factors which may influence the prevalence of Toxoplasma infection among the expecting women volunteers. The questionnaire developed from other validated questionnaires and other technical publications using expert advice from a range of sources and it was stabilized through a pilot study conducted prior, eventually it contains three parts: socio-demographic characteristic was the first part, the second part was medical factors associated with abortion and toxoplasmosis, and general behavior was the third part.

B) Patients' medical records (Case sheet)

Some information about the patients was taken from their case sheet such as diagnosis.

Statistical Analysis

Data entry and analysis were carried out using the statistical package for social science (SPSS program version -20). The Chi-square test was used. A P-value of < 0.05 was considered to be significance.

Results

This study showed that a higher percent of Toxoplasmosis in aborted women occur among age (20 – 30) young women a result of their interest to the mode of parasite transmission or due to the lack of knowledge of it. Also showed that blood group [O] is the most blood group infected.A higher percent of women in the study had no information of toxoplasmosis reach (72%) this factor maid the infection easily spread. There were no significant (P>0.05) association were detected in the study between Toxoplasmosis and the following variables (table-1).

Table (1) :The distribution of the sample according to personal data characteristics also chi-square and

Characteristics		**Percentage**	**X^2**	**P-value**
Age	**<20**	9.0	53.040[b]3	.000**(sig.)**
	20-30	55.0		
	30-40	24.0		
	40-60	12.0		
Total		100.0		
Age at marriage	**<20**	70.0	70.640[b]2	000**(sig.)**
	20-30	28.0		
	30-40	2.0		
Total		100.0		
Occupational status	**House wives**	87.0	54.760[c]1	000**(sig.)**
	Employee	13.0		
Total		100.0		
Educational level	**Educated**	84.0	46.240[c]1	.000**(sig.)**
	Illiteracy	16.0		
Total		100.0		
Type of family	**Single**	62.0	5.760[c]1	.016**(sig.)**
	Extent	38.0		
Total		100.0		
Socio-economic status	**Low**	26.0	34.160[d]2	.000**(sig.)**
	Medium	60.0		
	High	14.0		
Total		100.0		

P-value of all factors

Table (2): The distribution of the sample according to socio-demographic characteristics also chi-square and P-value of all factors

Characteristics		**P-value**	**X2**	**Percentage**
Number of gravidities	**1**	8.0	34.300[c]4	000**(sig.)**
	2	17.0		
	3	13.0		
	4	20.0		
	5...14	42.0		
Total		100.0		
Number of parity	**0**	15.0	4.000[c]4	.406**(N.S)**
	1	19.0		
	2	21.0		
	3	18.0		
	4...5	27.0		
Total		100.0		
Gestational age	**0**	7.0	43.100[a]4	.000**(sig.)**
	1	2.0		
	2	27.0		
	3	36.0		
	4…5	28.0		
Total		100.0		

$X^{2=}$Chi-square ,P-value = Significance level , Sig.= Significance , N.S = Non significance

Table (2)**shows** that all samples of socio-demographic characteristics have significance except the item (number of parity) has non significance. The table also show the high percent of all factors for example in the age the level (20-30) represent the higher percentage among all levels of age with (55.0%) and so on for all items (characteristics) of the table on the same ilk.

Table (3): The distribution of the sample according to the medical data with chi-square and P-value of the following factors .

Characteristics		**Percent %**	**X^2**	**P-value**
Blood group	**-A**	1.0	100.760[a]	.000**(sig.)**
	-AB	2.0		
	-O	5.0		
	+A	27.0		
	+B	14.0		
	+AB	8.0		
	+O	43.0		
Total		100.0		
History of abortion	**Yes**	93.0	73.960[a]1	.000**(sig.)**
	NO	7.0		
Total		100.0		
History still birth	**0**	7.0	95.600[c]4	000**(sig.)**.
	1	57.0		
	2	23.0		
	3	6.0		
	4...	7.0		
Total		100.0		
History of neonatal death	**0**	86.0	273.700[a]4	.000**(sig.)**
	1	8.0		
	2	3.0		
	3	2.0		
	4	1.0		
Total		100.0		
History of low birth weight	**0**	92.0	70.560[b]1	.000**(sig.)**
	1	8.0		
Total		100.0		
History of congenital anomalies	**0**	97.0	182.420[c]2	.000**(sig.)**
	1	2.0		
	2	1.0		
Total		100.0		
Complication during pregnancy	**Yes**	48.0	160[b]1	.689**(N.S)**
	No	52.0		
Total		100.0		
Investigation	**+ve**	43.0	1.960[b]1	.162**(N.S)**
	-ve	57.0		
Total		100.0		

Table(3)shows that all factors or characteristics represented a significance (P-value) except two of the items which (complication during pregnancy , investigation) considered non significance. Also the table deals with the percentage of medical characteristics for example we found the higher percent of blood group in (+O) with (43.0%) and so on for the other items.

Table(4) : The distribution of the sample according to behavioral information with chi-square and P-value of the data

Characteristics		**Percent %**	**X^2**	**P-value**
Have information of Toxoplasmosis	**Yes**	28.0	19.360[b]1	.000(sig)
	NO	72.0		
Total		100.0		
Visit to Dr.	**Yes**	87.0	54.760[b]1	.000(sig)
	No	13.0		
Total		100.0		
Visit way to Dr.	**Regular**	44.0	24.560[a]3	.000(sig)
	Irregular	15.0		
	in need	28.0		
	not visit	13.0		
Total		100.0		
Contact with animals	**Yes**	36.0	7.840[a]1	.005(N.S)
	No	64.0		
Total		100.0		

Table(4)express some behavioral information of the women who participated in the research, shows that the percent of women who have information of toxoplasmosis (28.0 %) and so on for the other characteristics notice that the contact with animals shows no significance with p – value (.005).

Discussion

The study shows many statistics such as Blood group O was recognized as a majority group had toxoplasmosis in our study, this result is forced by numbers of study from other researches which had as same as our result[(17)].

The significance of human blood groups can now be seen more clearly in the context of population movement, and the constant battle between humans and infectious disease. Evidence for selection by infectious diseases at the level of the AO and secretor genes is persuasive but for other blood group antigens, founder effects appear more likely to account for the distribution of blood group polymorphisms except that is, in parts of the world in which toxoplasma is endemic.[(18)]

For age the level (20-30) years old was recognized as a majority group had Toxoplasmosis in our study, this result is forced by numbers of study from other researches which had as same as our result.[(19)]

The study shows that large numbers of participators were house wife and were highly significance with percent 87%. These results agree with other research [(20)].

Educated women consist 84% of study sample educational level, our result had disagreement with other study.[(20)]The present study shows that 62 % of women were single habitat ,that they gave highly significance in abortion status, this is agreement with another study[(20)]. Majority of study sample were living at medium Socioeconomic condition with (60 %), this finding was agreement with some researches.[(21)]Majority of study

sample were about the age at marriage less than 20 years with (70 %), this finding was agreement with following study.[22]The study shows that large numbers of participators were significantly between 5-14 in number of pregnancies with (42%) That result agree with.[23]27% of participants had a positive p-value; more than one study had the same result. However, it had insignificant association.[24]

Among patients, the finding of the study indicated that high significant association was found. (93%) of samples who had abortion also toxoplasmosis, our study agree with other study's research[25] . 1still birth gave high percent with 57% of participants which had in significant p-value, this agreed with other researchers.[20] History of neonatal death reach 86% for the women who had no neonatal death that agreed with previous study .[20] A high percent from the women that had no low birth weight of their children reached to 92% ,that agreed with Other researchers [20]. Among the women of our study, that finding a significant association with History ofcongenital anomalies of samples. Our study displayed no significant p-value according to the percent of 52% of women that have no Complication During pregnancy.[20] Our study displayed no significant p-value according to the percent of 52% of women that have no Complication During pregnancy. 72% of women had no information of Toxoplasmosis. The study showed that there were no significant value among women in Investigation especially they were had 57% -ve of toxoplasmosis diagnosis.

Conclusion

This study showed that Toxoplasmosis in pregnancies is positively linked to age, educational level, occupational status, socio – economic status and the type of family.

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