**The detection of Toxoplasmosis among aborted women**

**in Al-Najaf Al-Ashraf province**

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**Abstract**

**Background :** 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.

**Objectives**: 1-To identify the relationship between all characteristics of a questionnaire 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).

**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: number of children , complication during pregnancy and contact with animals .

**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.

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

**Study design**

 A cross sectional study was conducted during the period from 1st November 2015 to the 1st of March 2016.

**Setting of the study**

 It was conducted in Al-Hakeem and Al-Zahra Hospitals in Al-Najaf Al-Ashraf province.

**Sample of the study**

 Non-probability (purposive) sample of (100) women who have history with abortion or who were diagnosed with **+**ve Toxoplasmosis.

**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**

1. **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 patient were 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.

**Table (1): The distribution of the sample according to socio-** **demographic characteristics also chi-square and P-value of all factors**

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristics**  | **Percent**% | **X2** | **P-value** |
| **Age**  |  |  |  |
| **<20** | 9.0 | 53.040b3 | .000**(sig.)** |
| **20-30** | 55.0 |
| **30-40** | 24.0 |
| **40-60** | 12.0 |
| **Total** | 100.0 |
| **Age at marriage** |  | 70.640b2 | .000**(sig.)** |
| **<20** | 70.0 |
| **20-30** | 28.0 |
| **30-40** | 2.0 |
| **Total** | 100.0 |
| **Occupational status** |  | 54.760c1 | .000**(sig.)** |
| **House wives** | 87.0 |
| **Employee** | 13.0 |
| **Total** | 100.0 |
| **Educational level** |  | 46.240c1 | .000**(sig.)** |
| **Educated** | 84.0 |
| **Illiteracy** | 16.0 |
| **Total** | 100.0 |
| **Type of family** |  | 5.760c1 | .016**(sig.)** |
| **Single** | 62.0 |
| **Extent** | 38.0 |
| **Total** | 100.0 |
| **Socio-economic status** |  | 34.160d2 | .000**(sig.)** |
| **Low** | 26.0 |
| **Medium** | 60.0 |
| **High** | 14.0 |
| **Total** | 100.0 |

|  |  |  |  |
| --- | --- | --- | --- |
| .000**(sig.)** | 34.300c4 |  | **Number of gravidities** |
| 8.0 | **1** |
| 17.0 | **2** |
| 13.0 | **3** |
| 20.0 | **4** |
| 42.0 | **5...14** |
| 100.0 | **Total** |
| .406**(N.S)** | 4.000c4 |  | **Number of parity** |
| 15.0 | **0** |
| 19.0 | **1** |
| 21.0 | **2** |
| 18.0 | **.3** |
| 27.0 | **4...5** |
| 100.0 | **Total** |
| .000**(sig.)** | 43.100a4 |  | **Gestational age** |
| 7.0 | **0** |
| 2.0 | **1** |
| 27.0 | **2** |
| 36.0 | **3** |
| 28.0 | **4,5** |
| 100.0 | **Total** |

X2 = Chi-square

P-value = Significance level

Sig.= Significance

N.S = Non significance

**Table (1):** shows that all samples of socio-demographic characteristics have significance except the item (number of parity) have 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 (2): The distribution of the sample according to the medical data with chi-square and P-value of the following factors**

|  |  |  |  |
| --- | --- | --- | --- |
| **P-value** | **X2** | **Percent****%** | **Characteristics** |
| .000**(sig.)** | 100.760a |  | **Blood group** |
| 1.0 | **-A** |
| 2.0 | **-AB** |
| 5.0 | **-O** |
| 27.0 | **+A** |
| 14.0 | **+B** |
| 8.0 | **+AB** |
| 43.0 | **+O** |
| 100.0 | **Total** |
| .000**(sig.)** | 73.960a1 |  | **History of abortion** |
| 93.0 | **Yes** |
| 7.0 | **NO** |
| 100.0 | **Total** |
| 000**(sig.)**. | 95.600c4 |  | **History still birth** |
| 7.0 | **0** |
| 57.0 | **1** |
| 23.0 | **2** |
| 6.0 | **3** |
| 7.0 | **4...** |
| 100.0 | **Total** |
| .000**(sig.)** | 273.700a4 |  | **History of neonatal death** |
| 86.0 | **0** |
| 8.0 | **1** |
| 3.0 | **2** |
| 2.0 | **3** |
| 1.0 | **4** |
| 100.0 | **Total** |
| .000**(sig.)** | 70.560b1 |  | **History of low birth weight** |
| 92.0 | **0** |
| 8.0 | **1** |
| 100.0 | **Total** |
| .000**(sig.)** | 182.420c2 |  | **History of congenital anomalies** |
| 97.0 | **0** |
| 2.0 | **1** |
| 1.0 | **2** |
| 100.0 | **Total** |
| .689**(N.S)** | 160b1 |  | **Complication during pregnancy** |
| 48.0 | **Yes** |
| 52.0 | **No** |
| 100.0 | **Total** |
| .162**(N.S)** | 1.960b1 |  | **Investigation**  |
| 43.0 | **+ve** |
| 57.0 | **-ve** |
| 100.0 | **Total** |

**Table(2):** 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(3) : The distribution of the sample according to behavioral information with chi-square and P-value of the data**

|  |  |  |  |
| --- | --- | --- | --- |
| **P-value** | **X2** | **Percent****%** | **Characteristics** |
| .000(sig) | 19.360b1 |  | **Have information of Toxoplasmosis** |
| 28.0 | **Yes** |
| 72.0 | **NO** |
| 100.0 | **Total** |
| .000(sig) | 54.760b1 |  | **Visit to Dr.** |
| 87.0 | **Yes**  |
| 13.0 | **No** |
| 100.0 | **Total**  |
| .000(sig) | 24.560a3 |  | **Visit way to Dr.** |
| 44.0 | **Regular** |
| 15.0 | **Irregular** |
| 28.0 | **in need** |
| 13.0 | **not visit** |
| 100.0 | **Total** |
| .005(N.S) | 7.840a1 |  | **Contact with animals** |
| 36.0 | **Yes** |
| 64.0 | **No** |
| 100.0 | **Total** |

**Table(3) :** 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

 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.(17)

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.(18)

The study shows that large numbers of participators were house wife and were highly significance with percent 87%. That result agree with other research(19).

Educated women consist 84% of study sample educational level, our result had disagreement with other study.(19) 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(19). Majority of study sample were living at medium Socioeconomic condition with (60 %), this finding was agreement with some researches.(20) Majority of study sample were about the age at marriage less than 20 years with (70 %), this finding was agreement with following study.(21) The study shows that large numbers of participators were significantly between 5-14 in number of pregnancies with (42%) That result agree with.(22) 27% of participants had a positive p-value ; more than one study had the same result. However, it had insignificant association. (23)

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(24) . 1still birth gave high percent with 57% of participants which had insignificant p-value ,this agreed with other researchers.(19) History of neonatal death reach 86% for the women who had no neonatal death that agreed with previous study .(19) A high percent from the women that had no low birth weight of their children reached to 92% ,that agreed with Other researchers .(19) 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.(19) 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 theywere had 57% -ve of toxoplasmosis diagnosis.

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