

Assessment of knowledge and practice among females about toxoplasmosis

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Abstract

Background: Toxoplasmosis is a serious problem of females during their reproductive period of life, so improving their awareness about the disease and preventive measures is very important in reducing and preventing toxoplasmosis.

Objective of this study was to assess the knowledge, practice and attitude among (15-45) year old females in Tikrit city about toxoplasmosis.

Subjects & methods: This is a cross sectional observational study was conducted in Tikrit city from the period of 15th of November/2015 to 15th of March/2016 among females in Tikrit city. Sample size was 200 females were selected in a convenience sampling design. Data was collected by a self- administered questionnaire.

Results: knowledge was poor in 75.15% of females , 23.75% had moderate knowledge and only 1.1% had good knowledge, but they were having a positive practice of the preventive measure of the disease as 100% had good practice .The majority of women 89.51% didn't perform toxoplasmosis test. Most of their information was acquired from TV which was the source for 34.8% of women.

Conclusion: Most of them were unaware about the clinical presentation and complications of the disease. Their preventive measurements practice were good

Introduction

Toxoplasma gondii is an intracellular parasite. The sexual phase of the parasite's life cycle (Fig. 1) occurs in the small intestinal epithelium of the domestic cat. Oöcysts are shed in cat faeces and are spread to intermediate hosts (pigs, sheep and also humans) through widespread contamination of soil. Oöcysts may survive in moist conditions for weeks or months. Once they are ingested, the parasite transforms into rapidly dividing tachyzoites through cycles of asexual multiplication. This leads to the formation of microscopic tissue cysts containing bradyzoites, which persist for the lifetime of the host. Cats become infected or reinfected by ingesting tissue cysts in prey such as rodents and birds. Human acquisition of infection occurs via oöcyst-contaminated soil, salads and vegetables, or by the ingestion or tasting of raw or undercooked meats containing tissue cysts. Sheep, pigs and rabbits are the most common meat sources. Outbreaks of toxoplasmosis have been linked to the consumption of unfiltered water. In developed countries, toxoplasmosis is the most common protozoal infection; around 22% of adults in the UK are seropositive. Most primary infections are subclinical; however, toxoplasmosis is thought to account for about 15% of heterophil antibody-negative glandular fever.^[1] In most immunocompetent individuals,

including children and pregnant women, the infection goes unnoticed. In approximately 10% of patients it causes a self-limiting illness, most common in adults aged 25–35 years. The most common presenting feature is painless lymphadenopathy, either local or generalized. In particular, the cervical nodes are involved, but mediastinal, mesenteric or retroperitoneal groups may be affected. The spleen is seldom palpable. Most patients have no systemic symptoms but some complain of malaise, fever, fatigue, muscle pain, sore throat and headache. Complete resolution usually occurs within a few months, although symptoms and lymphadenopathy tend to fluctuate unpredictably and some patients do not recover completely for a year or more. Very infrequently, patients may develop encephalitis, myocarditis, polymyositis, pneumonitis or hepatitis. Retinochoroiditis is nearly always the result of congenital infection but has also been reported in acquired disease.^[1] Congenital toxoplasmosis Acute toxoplasmosis, mostly subclinical, affects 0.3-1% of pregnant women, with an approximately 60% transmission rate to the fetus which increases with increasing gestation. Seropositive females infected 6 months before conception have no risk of fetal transmission. Congenital disease affects approximately 40% of infected

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fetuses, and is more likely and more severe with infection early in gestation. Many fetal infections are subclinical at birth but longterm sequelae include retinochoroiditis, microcephaly and hydrocephalus.^[1]

Diagnosis of toxoplasmosis in humans is made by biological, serological, histological, or molecular methods. Once the diagnosis of acute toxoplasmosis or *T. gondii* infection has been confirmed or is highly suspected in the mother, the next step is to attempt to establish whether her offspring has been infected. Consultation with reference centers for the study and diagnosis of congenital toxoplasmosis is highly recommended.^[2]

Ultrasound abnormalities can be consistent with or suggestive of congenital toxoplasmosis, but they are not diagnostic. The method of choice for

the prenatal diagnosis of congenital toxoplasmosis is a PCR in amniotic fluid obtained at 18 weeks of gestation.^[1]

Attempts to diagnose congenital toxoplasmosis from amniotic fluid obtained before 18 weeks of gestation should be avoided because the studies reported to date have included only pregnant women whose gestational age was 18 weeks or more. In addition false-negative results have been reported in women whose amniocentesis was performed before 18 weeks of gestation. The overall sensitivity of the amniotic fluid PCR has been reported between 64 and 92% and is highly dependent of the gestational age at which the mother

acquired the infection.^[2] Prevention is by properly preparing and cooking food. It is also recommended that pregnant women not clean cat litter boxes. Treatment of otherwise healthy people is usually not needed. During pregnancy spiramycin or pyrimethamine/sulfadiazine and folic acid may be used for treatment.^[3]

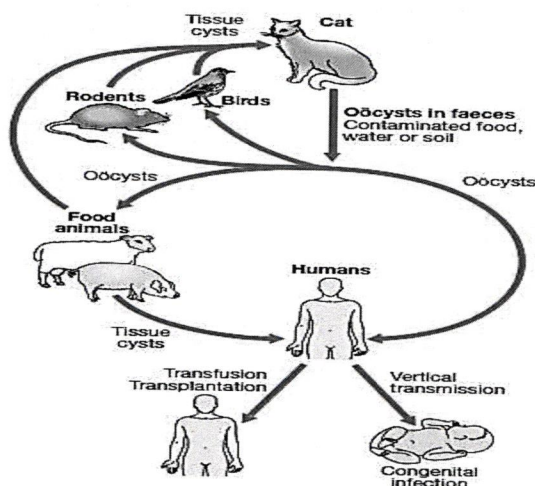


Fig (1)

The aim

of the study: to assess the knowledge and practice among females about toxoplasmosis.

The objectives

1. Recognize the demographical characteristics of the study sample.
2. Recognize the knowledge of females about toxoplasmosis causative agent & mode of transmission.
3. Recognize knowledge of females about toxoplasmosis signs & symptoms.
4. Identify knowledge of females about the complications of toxoplasmosis during pregnancy.
5. Identify knowledge of females regarding toxoplasmosis effects on fetus.
6. Clarify the practice of females about preventive behaviors toward toxoplasmosis.

subject and methods

Community based cross sectional study on 200 females in Tikrit city from 15th of November/2015 to 15th of April/2016. This study was performed among females aged between 15-45 years old. Samples were chosen from Al-Zohor discrete, Al- Jamiea discrete and Al-Qadisea city. The study design was by using convenience sampling method , by which we chose the available sample units and this is due to security condition and transporting obstacles, we make a decision about how many units will be required to produce valid results. The sample size

was 200 we selected different samples without repeating them by their names.. Respondents were assured that the information obtained would be confidential and used only for statistical purposes.

Data Analysis and Presentation

All data management and analyses was done by using the manual statistical methods. Data have been represented by a suitable tables and figures also we use Blumberg cutoff point scoring system to assess the knowledge. We used this scoring system to estimate the knowledge of females about toxoplasmosis, we gave the right answer 1 degree and the wrong answer zero, then we do summation, if the result was 80_100% we considered it as good knowledge, 50_79% as moderate and less than 60% we considered it as poor knowledge.

Results

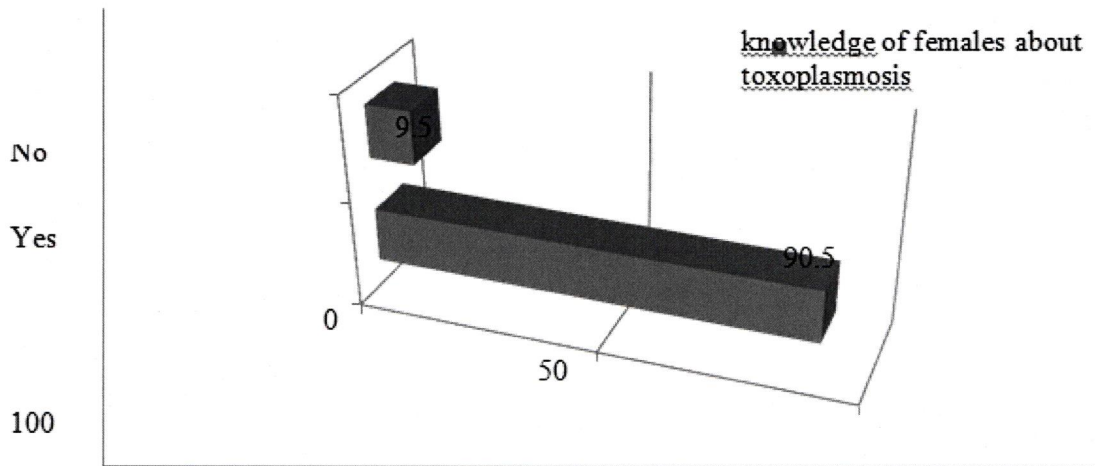


Figure (1): knowledge of females about toxoplasmosis

90.5% heard about toxoplasmosis while 9.5% didn't hear about it.

Table (1): The characteristics of study sample

parameter	Heard about toxoplasmosis (90.5%)	Didn't hear about toxoplasmosis (9.5%)
Uneducated	(5)2.76%	(11)5.26%
Educated (<12year)	(73)36.46%	(148)73.68%
Educated (>12year)	(122)60.77%	(42)21.05%
Marned	(68)33.7%	(22)10.53%
Nulliparous marned women	(29)14.57%	(0)0%
Multiparous marned women	(0)0%	(100)100%
Pregnant	(13)6.55%	(0)0%
Contact with cats	(22)10.5%	(24)11.6%

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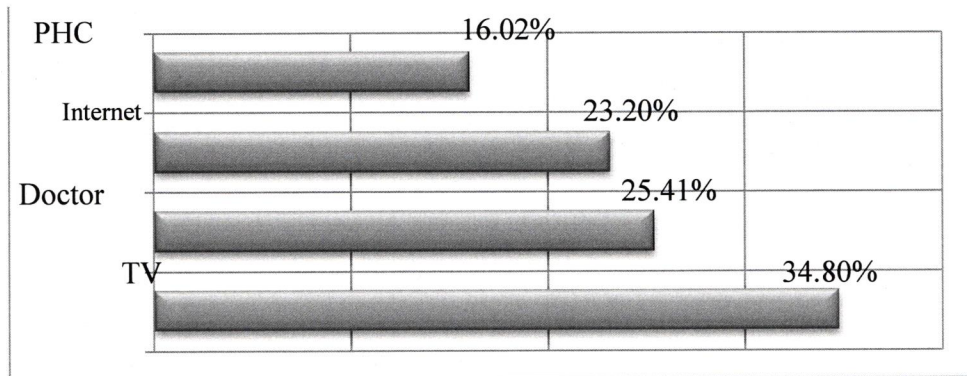


Figure (2): source of information of women about toxoplasmosis

The television is the source of information in about 34.8% of women, the doctor is the source of information in about 25.41%, the internet is the source of information in about 23.2% and 16.02% from PHC.

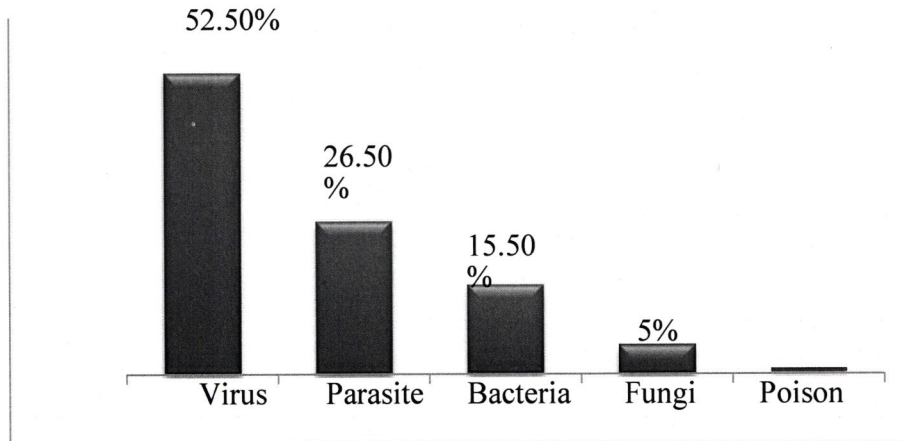


Figure (3): The knowledge of females about the causative agent of the disease.

52.5% thought the infection is caused by virus, 26.5% said it is caused by parasite, 15.5% thought the bacteria is the cause, 5% said the infection is fungal while 0.55% thought that the poison is the cause.

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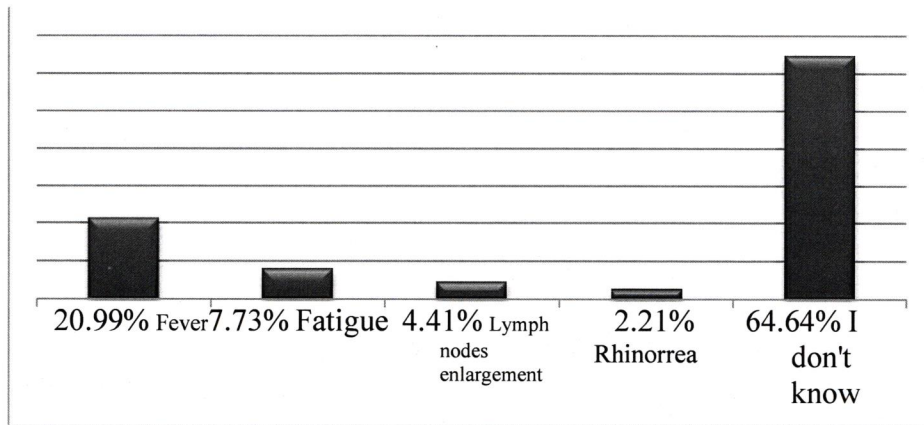


Figure (4): The awareness of females about the clinical presentation of toxoplasmosis

20.99% said fever, 7.73% said fatigue, 4.41% said lymph nodes enlargement, 2.21% chose rhinorrhea while

64.64% didn't know.

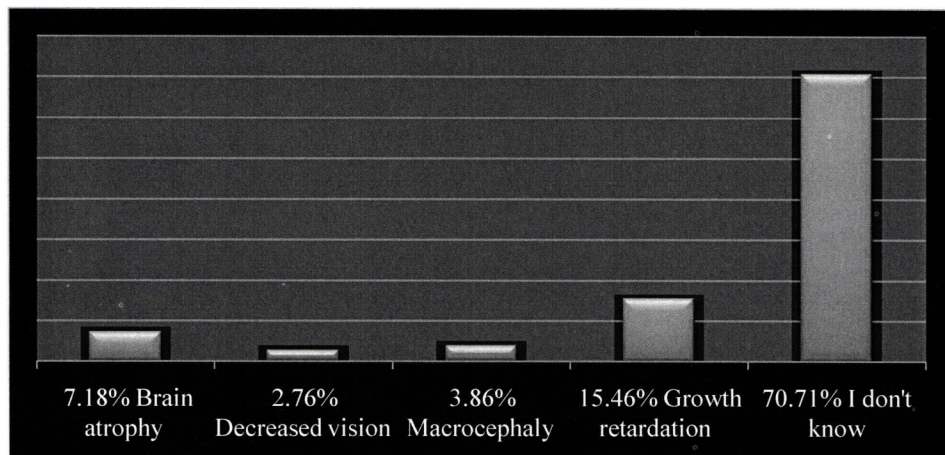


Figure (5): The awareness of females about the effects of the disease on fetus

7.18% said that the fetus will have brain atrophy, 2.76% said decreased vision, 3.86% said macrocephaly, while 15.46% said growth retardation and 70.71% said I don't know.

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Table (2): Knowledge of females about manifestations, transmission and complications of toxoplasmosis

Answer Questions	Yes	No	I don't know
Toxoplasmosis caused by infection?	45.85%	23.2%	30.93%
Is the causative organism present in cat feces?	40.88%	12.71%	46.41%
Is the causative organism present in raw and uncooked meat?	32.59%	22.09%	45.3%
Is it possible that female get infected with toxoplasmosis when she clean the cats' places?	62.98%	9.94%	27.07%
Is it possible that female get infected with toxoplasmosis when she eats raw meat?	32.59%	20.44%	46.96%
Is it possible that female get infected with toxoplasmosis when she clean gardens without gloves?	51.38%	15.46%	33.14%
Is there are any dangerous complication (e.g.: abortion) if the pregnant mother get infected with toxoplasmosis?	85.63%	1.1%	13.25%
Is it possible that the fetus of infected mother get congenital anomalies?	62.43%	10.49%	27.07%
May the mother be infected but doesn't have any symptoms?	55.8%	12.15%	32.04%
Can the disease be transmitted from the infected mother to the fetus just if she infect with it during pregnancy?	61.87%	13.81%	24.31%
Can the disease be transmitted from the infected mother the fetus just if she infected with it before pregnancy?	30.38%	19.33%	50.27%
Are there any drugs available to treat the infected infant?	39.22%	8.28%	52.48%

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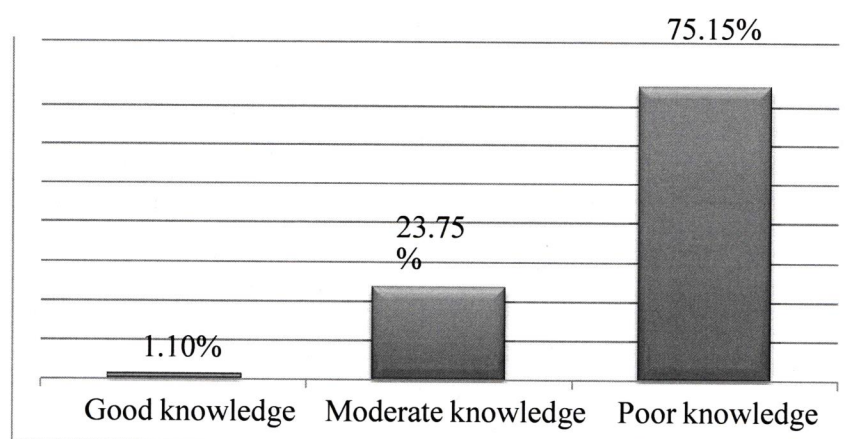


Figure (6): knowledge of female according to Bulberg Cuttoff point scoring system

75.15% of female have poor knowledge , 23.75% have moderate knowledge while only 1.1% have good knowledge.

Table (3): practice of females against toxoplasmosis

Answer Questions	Yes	No
Did you do any investigations and tests toxoplasmosis?	10.49%	89.51%
Serving cat special food and prevent it from hunting mice?	83.97%	16.02%
Prevention of pregnant women from gardening?	94.47%	5.52%
Hand washing after cleaning cat places?	98.89%	1.104%
Good cooking of meat?	99.45%	0.55%
Hand washing after meat cooking?	99.45%	0.55%
Washing and peeling of fruits and vegetables	99.45%	0.55%
?Washing all cooking stuff	100%	0%
Hand washing after cleaning gardens	100%	0%

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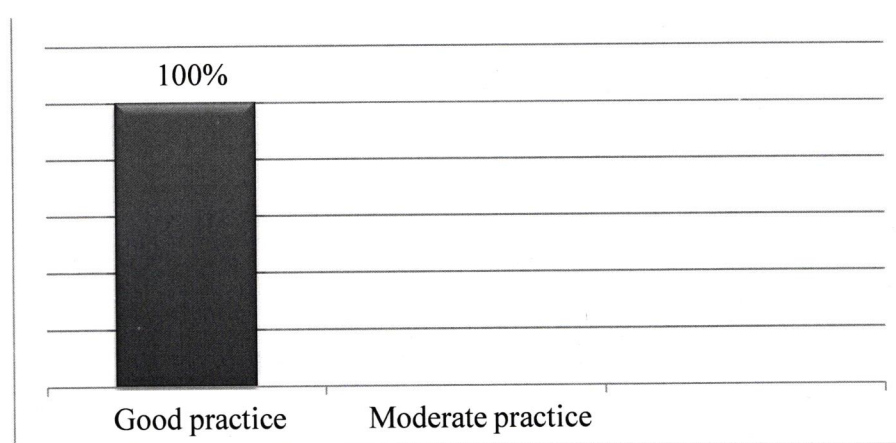


Figure (7): practice of females against toxoplasmosis according to Bulberg Cuttuff point scoring system From total 100%, 100% have good practice.

Discussion

Public information about toxoplasmosis is very important since the serious effect of the disease on the mother and her child. In our study which is concerned with knowledge, practice and attitude of 200 females of (15-45 years old) in Tikrit city about toxoplasmosis, for those who had heard about toxoplasmosis, the highest source of their information were from television, this may be due to the availability of health programs that need no efforts to search. This finding unlike the study that conducted in US that indicated the important role of health professionals in informing females about toxoplasmosis as more than half of those females had heard about it from a medical professional. The findings of this study also indicate that the doctors and internet are good sources to reach women with information about toxoplasmosis, also we found that only 10.49% of respondents indicated that they had been tested for toxoplasmosis, whereas US study found

only 7% did the test, and this may be due to the increase in the abortion rate in our

society. [5] Regarding the knowledge only 45.85% of respondents were certain that the disease caused by an infection, and 0.5% thought that a poison causes it, this unlike US study which found 21% of respondents thought that a poison causes it, and poor knowledge was about the presence of the causative agent in the stool, unlike in US study which found the highest level of knowledge about the presence of it in stool, this may reflect the poor education of the society about the disease. Respondents seemed to have good knowledge about the serious complications (such as abortion) of toxoplasmosis (85.63% said yes) whereas in US study they found 58% said yes about the complication, and we found 62.43% thought that the disease cause serious complication, whereas in the study of US only

56% and this is also may be due to the high rate of abortion and the presence

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of congenital anomalies in the fetuses in our city. There was poor knowledge about risk factors for toxoplasmosis, and this result resembles US study except they found good knowledge about cat feces. In general, 61.87% of respondents thought that the disease could be transmitted from infected mother to her child if she infected during pregnancy, whereas in US study 68% were unsure about the timing of infection. Also we found the majority of respondents were unsure about the signs and symptoms of toxoplasmosis in both the mother and the infant, and this result is the same as in US study and this could be due to poor education^[5]

about it. Although the poor knowledge about toxoplasmosis, we found that 99.45% of females have good hygiene practice other than serving cat special food, and this could be linked to our eastern society nature, whereas in US study their practice varied from

80% routinely washed their hands after changing cat litter, 93% routinely washed their hands after gardening, 96% routinely washed their hands after^[5] handling raw meat.

Conclusions

1. 33.7% of females who heard about toxoplasmosis were married and have children, while 66.3% of them were unmarried, and the majority (60.77%) of them have an educational level of more than 12 years.

2. Majority of females did have information about mode of infection except for the infection by undercooked meat.

3. 64.64% of females do not know about signs and symptoms.

4. Majority of females have good knowledge regarding complication, especially abortion

5. 70.71% of females do not have information about effect of toxoplasmosis on fetus.

6. Toxoplasmosis preventive practices are generally good.

Recommendations

To the health staff in PHCC:

To educate the population about toxoplasmosis and its complication during the antenatal visit Plan an attendance and local conferences in the PHCC to enrich the role of PHCC in educate the population To ministry of health:

Educate the population by using mas' media and leaflets to explore the disease to most of the population Facilitate the diagnosis of the disease during & before pregnancy by the availability of diagnostic tests in the PHCC Eradicate the disease by controlling the infected animals & continuous monitoring of the meat slitters To ministry of higher education: For further studies about toxoplasmosis knowledge in other cities.

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