DETECTION OF TOXOPLASMOSIS AMONG WOMEN WITH ABORTION USING MOLECULAR AND SEROLOGICAL TESTS IN DUHOK CITY

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ABSTRACT

Background: Toxoplasmosis is accompanied with variable complications in pregnant women. The aim of this study was to detect the rate of Toxoplasma gondii infection among aborted women with previous bad obstetrical history and women with no previous history of abortion after normal labour by both serological and molecular techniques.

Subject and Methods: A total of 100 pregnant women were included in the current study admitted to Gynecology and Obstetrics Hospital throughout the period from October 2014 – February 2015, in Duhok City/ Kurdistan Region/ Iraq. The placentae and blood samples of 70 aborted women were tested serogecally using ChemlumencenseImmuno Assay and PCR tests, and 30 placental samples of normal women were tested using PCR technique only.

Results: On serological screening by CLIA, 7/70 (10%) and 2/70 (2.8%) of aborted women were seropositive for anti-toxoplasma IgG and IgM antibodies, respectively. While, on conventional PCR, 55/70 (78.5%) of aborted women were positive against Toxoplasma gondii infection.

According to gestational period, out of 57 cases in the first trimester, CLIA detected in 5 (8.8%) and 1 (1.8%) anti-toxoplasma IgG, IgM antibodies respectively. The highest positive rate was 43 (75.4%) against T. gondii infection by PCR in the first trimester.

A total of 10 cases in the second trimester, 2 cases (20%) and one case (10%) were seropositive for anti-toxoplasma IgG, and IgM antibodies were detected by CLIA respectively, while 9 (90%) cases were positive by PCR in the second trimester, in the third trimester none were seropositive, and all cases (100%) were PCR positive.

Conclusion: The current study showed high infection rate of toxoplasmosis among aborted women in Duhok city – Kurdistan region of Iraq. There is a need to introduce PCR as a confirmatory test for detection of acute toxoplasmosis with serological tests.

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Keywords: Toxoplasmosis, aborted women, ChemlumencenseImmuno Assay, PCR

Toxoplasma gondii is an obligatory coccidian parasite belongs to phylum apicomplexa causes a disease called toxoplasmosis. Toxoplasmosis has a cosmopolitan distribution particularly in warm and humid areas.[1]

It is estimated that up to a billion of the world population carries T. gondii.[2] Both prevalence and incidence of infection differ according to population and geographical regions.[3] In humans the prevalence and incidence of toxoplasmosis depend on several factors including, age, geographic location, cultural traditions, nutritional and hygiene habits.[4, 5]

During pregnancy, congenital transmission happens when an uninfected mother gets primary infection.[6] Acquiring the infection during pregnancy is associated with transmission of T. gondii to the fetus through the placenta, leading to fetus malformation or congenital toxoplasmosis.[7]

Infection causes are spontaneous abortion,

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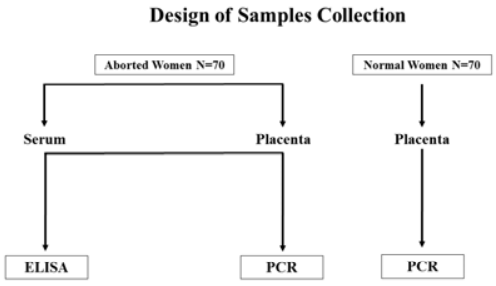
stillbirth, or severe fetal damage. Toxoplasmosis causes miscarriage, death in utero, or severe neurological lesions, while fetal infection occurring later in pregnancy may result in either congenital disease or subclinical infection.[3]

Where serological assays are unreliable or when the other clinical diagnosis tests are doubted, the PCR technique can be used.8 PCR is a powerful diagnostic method with both high sensitivity and specificity compared to serology and culture techniques, which are insensitive and time-consuming.[9]

The aim of the current study are to determine the rate of T. gondii infection in aborted women and full term delivery by using serological and conventional PCR techniques.

SUBJECTS AND METHODS



Collection of Blood Samples for Serological test

A total of 70 blood samples were collected from women with abortion, from each a volume of 5ml of blood was obtained by vein puncture, then centrifuged to obtain the serum. Information were obtained from each women including, age, and number of abortions, residency, occupation, and literacy. Sera were stored at -20 0C until being screened for anti- toxoplasma antibodies. Detection of anti-toxoplasma IgG and IgM antibodies were achieved by using CLIA.

Collection of Placentae for Conventional PCR

A total of 100 placentae were obtained from both full term (30 samples) and aborted women at different trimesters (70 samples). The entire placentae were achieved in the delivery and curettage rooms of Gynecology and Obstetrics Hospital/ Duhok.

All the placenta samples of the first trimester were obtained after curettage. All samples of the second and third trimesters were collected at delivery rooms. About 50gm of placentae tissue were obtained from different locations of placentas, put in a falcon tube and soaked in Phosphate-Buffered Saline solution (PBS). For every sample, new disposable gloves razor, and a scalpel were used to avoid contamination then the samples were labeled with full information as performed for blood samples, then transferred to the laboratory of Microbiology Department/College of Medicine and were stored at -200C until use.[10]

Serological Tests

In the current study CLIA serological test was done according to the manufacturer's protocols (DiaSorin, Italy and plasmatec laboratory product, Italy).

Conventional PCR

The UltraClean Tissue & Cells DNA extraction kit was used for extracting genomics DNA.10 In order to identify T. gondii, the B1 gene was amplified with forward (TCGGAGAGAGAAGTTCGTCGCATG) and reverse (AGCCTCTCTCCTCAAGCAGCGG TA ~125 bp) primers respectively.

Master Mix Composition

Composed of mixture 5 units of Taq DNA polymerase, PCR buffer 100 mMtris-HCl, 1.3mM MgCl2, and 200mMdNTPs.PCR

was carried in a 25µl reaction mixture containing: 12.5 Master mix, 2 µl genomic DNA, 1µl for each forward and reverse primers, and 8.5µl Distilled water. The reaction was performed in an automatic thermocycler with following cycling parameter: one cycle for initial denaturation at 94 0C for 3 minutes, 40 cycles for Denaturation at 940C, Annealing at 530C, and Elongation at 720C for 30 seconds, and then the final extension 1 cycle at 720C for 5 minutes.10 A volume of 10µl of each PCR product and 4µl of DNA electrophoresed in a 1% agarose gel at ~80 V for 75-120 minutes. The results were visualized after staining with ethidium bromide in UV transilluminator.

Statistical Analysis

Results were considered to be statistically significant with (P-values < 0.05) using Chi-square test.[11] The statistical analysis of the results was performed by using statistical program (R) Tutorials for Chi – square test of independence.

RESULTS

Table1 displays that all (100) examined women were distributed as groups according to residency, 24 (24%) cases from rural areas, and 76 (76%) were urban. Regarding the occupation status, 36 (36%) were employed, and 64 (64%) were housewives. The educational status, 39 (39%) of cases were literate, and 61 (61%) were illiterate. Among the literate cases, they were either primary, secondary or university levels.

Out of 70 examined aborted women, 34 (48.6%) were represented with a history of abortion for the first time, 26 (37.1%) with second time abortion 6 (8.6%) with triple abortion and 4 (5.7%) with fourth times or more abortions. Age groups were 18-24 (35.1%), 25-31 (57.1%), 32-38 (4.3), and 39-45 (2.9%) years. Regarding the gestational period of first trimester cases was 57 (81.4%), second trimester 10 (14.3%) and third trimester 3 (4.3%).

Table 1: Socio-demographic characteristics among total examined women in Duhok city (n = 100)

Examined groups		Aborted Women		Normal women		Total Women
Characteristics	Groups	n.=70	%	n=30	%	n=100
Residency	Rural	19	27.1	5	16.7	24
	Urban	51	72.9	25	83.8	76
Occupation	Employed	26	37.1	10	33.3	36
	Housewife	44	62.9	20	66.7	64
Education	Literate	31	44.3	8	26.7	39
	Illiterate	39	55.7	22	73.3	61
Number of aborted fetuses	Abortion for first time	34	48.6	4	13.3	38
	Abortion for second time	26	37.1	2	6.7	28
	Abortion for third time	6	8.6	2	6.7	8
	Fourth times or more	4	5.7	1	3.3	5
Age of the groups(years)	18-24	25	35.7	12	40	37
	25-31	40	57.1	15	50	55
	32-38	3	4.3	3	10	6
	39-45	2	2.9	0	0.0	2
Gestational period	First Trimester	57	81.4	-	-	57
	Second Trimester	10	14.3	-	-	10
	Third Trimester	3	4.3	30	100	33

Table 2 shows that the total infected women with T. gondii among the 70 aborted women using serological test were 9/70 (12.9%). Whereas, by using PCR, the number increased to 55/70 (78.5%).

Table 2: Distribution of T. gondii infection among 70 aborted women using Serological and PCR tests

Tests	Positive results				Total T. gondii infection	
	IgG	%	IgM	%		%
Serological	**7**	**10**	**2**	**2.9**	**9**	**12.9**
PCR	**55**		**78.6%**		**55**	**78.6%**

NS=Non significant (P-value >0.05)

RESULTS OF SEROLOGICAL TEST

It was evident that most cases 51/70 (72.9%) obtained from T. gondii infection related to residency groups of women with bad obstetrical history (BOH) using serological were reported from the urban group, while a lower number of cases 19/70 (27.1%) were from the rural group. High levels of IgG anti-toxoplasma antibodies were found in an arural group of 3/19 (15.8%) than urban cases of 4/51 (7.8%). While regarding IgM anti-toxoplasma, antibodies were detected in urban group 2/51 (3.9%), but it was not indicated in rural group. There was no significant difference between these two groups concerning IgG and IgM (P-value > 0.05).

According to occupations the numbers of the positive IgG cases were 5/44 (11.4%) and 2/26 (7.7%) in housewives versus in employed women. No IgM anti-toxoplasma antibodies were detected in housewives cases while two (7.7%) IgM positive cases were detected in employed women 2/26 (7.7%). Statistically there was no significant difference between the both groups.

The seropositivity of anti-*T.gondii* IgG and IgM among abnormal women with BOH according to educational status was 3/31(9.7%) and 4/39 (10.3%) of IgG among literate and illiterate cases respectively. While anti-T. gondii IgG and IgM was detected in 2 out of 31literate cases (6.5%).

The age groups with BOH were considered as 25(35.7%) cases of (18-24) year group, 40 (57.1%) cases of (25-31) year group, 3 (4.3%) cases of (32-38) year group, and 2 (2.9%) cases of (39-45) year group.The high seropositivity of both IgG and IgM were found in age group (25-31)years, IgG was 5/40 (12.5%), and IgM was 2/40 (5%) in comparison to other groups. Whereas, IgG anti-toxoplasma antibody was 2 (8%) in (18-24) age group and no IgM was recorded. Regarding both age groups (32-38) and (39-45), no IgG and IgM were detected among them. Statistically there was no significant difference between the both groups.

Seropositivity of *T. gondii* among the abnormal group with BOH concerning the gestational period; high abortion cases were found in first trimesters, 57 (81.4%) while the lowest cases were found in the third trimester as 3 (4.3%). The high number of IgG 2/10 (20%), and IgM 1/10(10%) cases were recognized in the second trimester. While the seropositivity of *T. gondii* among the abnormal group

with BOH belonged the first-trimester group identified IgG in 5/57 (8.7%) and IgM in 1/57(1.8%) cases. No IgG and IgM were detected in the third trimester.

Out of 70 of aborted women, 34 were with single abortion cases, 26 with double abortions, 6 with triple abortions and 4 four and more abortions. Results revealed that women belonged to triple abortions group, 2/6 (33.3) were seropositive for IgG, while no IgM antibodies. Then women belonged to double and single abortions groups have shown seropositive for IgG 4/26 (15.4%) and 1/34(2.9%), respectively and no anti- toxoplasma IgM antibodies were detected.Women belong to four and more times abortions revealed no IgG and IgM seropositivity.

RESULTS OF PCR

Table 3 shows the PCR positive cases among the normal and aborted women. As indicated in the table, 55/70(78.6%) of women with BOH were PCR positive and 22/30(73.3%) of normal women were PCR positive.

Table 3: PCR detection of T. gondii among the normal and aborted women (n=100)

Women groups					Statistics		
	Normal group		BOH group		X2 Test	Df	P-value
N. (%)	n=30	30%	n=70	70%			
PCR +ve	22	73.3	55	78.6	0.096	1	0.755

NS= Non significant (P-value > 0.05)

According to residency, the highest number of PCR positive was among urban resident, since 43/51(84.3%) while 12/19(63.2%) of the rural residents were PCR positive as shown in Table 4.

Table 4: PCR detection of T. gondii among aborted women related to the residency

Residency					Statistics		
	Rural		Urban		X2 Test	df	P-value
N. (%)	n=19	27.1	n=51	72.9			
PCR +ve	12	63.2	43	84.3	2.530	1	0.111

NS=Non significant (P-value >0.05)

Table 5 represents the PCR positive cases in relation to occupation. Housewives showed the highest PCR positive samples, since 35/44 (79.4%), followed by employed women, as 20/26(76.9%).

Table 5: PCR detection of T. gondii among aborted women related to the occupation

	Occupation				Statistics		
	Housewives		Employed				
N. (%)	n=44	62.9%	n=26	34.1%	X2 Test	df	P-value
PCR +ve	35	79.5	20	76.9	1.266	1	1

NS= Non significant (P-value >0.05)

According to the education, Table 6 shows that illiterate groups showed more PCR positive cases 32/39 (82.1%) than literate groups 23/31 (74.2%).

Table 6: PCR detection of T. gondii among aborted women related to the education

	Education				Statistics		
	Literate		Illiterate				
No. (%)	n=31	44.3%	n=39	55.7%	X2 Test	df	P-value
PCR +ve	23	74.2	32	82.1	0.252	1	0.615

NS=Non significant (P-value >0.05)

Regarding to the age, the highest rate of toxoplasmosis was found among the age groups 25-31 year as, 33/40(82.5%), followed by the age group 18-24 year which showed 18/25 (72%) cases of toxoplasmosis. While both age groups 32-38 and 39-45 years, showed the lowest number of infection as, 2/3 (66.7%) and 2/2(100%) had toxoplasmosis, respectively as indicated in Table 7.

Table 7: PCR detection of T. gondii among aborted women related to the age groups

	Age groups (years)								Statistics		
	18-24		25-31		32-38		39-45		X2 Test	df	p-value
No. (%)	n=25	35.7%	n=40	57.1%	n=3	4.2%	n=2	2.9%			
PCR +ve	18	72.0	33	82.5	2	66.7	2	100	1.805	3	0.613

NS= Non significant (P-value >0.05)

Regarding to the pregnancy period, those at the first trimester, have the highest number, since 43/57 (75.4%), followed by the second trimester, 9/10(90%) and the least those at the third trimester, 3/3 (100%) as shown in Table 8.

Table 8: PCR detection of T. gondii among aborted women related to pregnancy periods

	Pregnancy periods						Statistics		
	First Trimester		Second Trimester		Third Trimester		X2 Test	df	p- value
No. (%)	n =57	81.4%	n=10	14.3%	n =3	4.3%			
PCR +ve	43	75.4	9	90	3	100	1.926	2	0.381

NS=Non significant (P-value >0.05)

According to the number of abortions, it was found that 26/34 cases of (76.5%) of single abortion had toxoplasmosis. Besides 21/26 (80.8%) 4/6 (66.7%), and 4/4 (100%) cases of women with two, three, and four abortions had toxoplasmosis, respectively, as shown in Table 9.

Table 9: PCR detection of T. gondii among aborted women in relation to the number of abortions

	Number of abortions								Statistics		
	Single		Twice		Triple		Four and more		X2 Test	df	p-value
No. (%)	n=34	48.8%	n=26	37.1%	n=6	8.6%	n=4	5.7%			
PCR +ve	26	76.5	21	80.8	4	66.7	4	100	1.759	3	0.623

NS=Non significant (P-value >0.05)

The results of positive and negative cases are listed in Table 10. Among total examined women using serological, and PCR. It was evident from serological test that 7 cases had IgG and 2 cases had IgM anti-toxoplasma antibodies. PCR technique showed that 55 had toxoplasmosis of aborted women. While from normal women 22 had toxoplasmosis.

Table 10: Serological and PCR results of screening sera and placenta samples of full term and aborted women

Groups	Cases	CLIA results				PCR results	
		IgG+	%	IgM+	%	PCR+	%
Aborted women	70	7	10	2	2.9	55	78.6
Full term women	30	--	--	--	--	22	73.3

It is clear from figure1 that the positive PCR bands were with ~125bp. using specific primers.

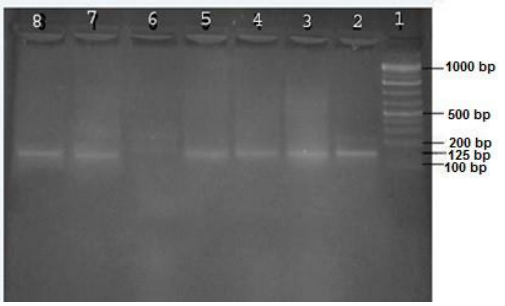


Figure 1: Agarose gel (1%) electrophoresis analysis of PCR amplification of 5 DNA samples with specific primers for T. gondii using (Toxo F and Toxo R). Lane (1) marker (1kb). Lanes (2-4): positive results (~125bp) of aborted fetuses' placentae. Lane (5): positive control. Lane (6): negative control. Lanes (7-8): positive results (~125 bp) of full term fetuses' placentae.

DISCUSSION

Toxoplasma gondii infection is often asymptomatic or a mild clinical disease which is not detectable.[12] Nevertheless, the parasites may be transmitted to the fetus when toxoplasmosis occurred during the pregnancy period and caused severe damage.[13] Toxoplasmosis diagnosis in pregnant women at early gestation period (first trimester) is important by physicians, to provide early treatment to prevent congenital infection of fetuses. The physicians focus on women with the previous case of BOH, such as a number of abortions and other types of congenital abnormalities.[14]

In the current study, 2.9% of the aborted women were positive for anti-toxoplasma, IgM antibody out of 70 cases. Our result is in agreement with the study which was done in Duhok province – Kurdistan Iraq in which they were revealed that out of 310 women who were tested by ELISA only, low percent (0.97%) detected with anti-toxoplasma IgM antibody.15 Additionally, our results were in agreement with a survey done in New Zealand, in which 500 aborted women were tested using ELISA, they found that 2.5% and 33% of 500 women were seropositive for IgM and IgG anti-toxoplasma antibodies respectively, this might be related to large sample size and presence of high cases of old infection.24 While the study conducted by16 in Kalar-Kurdistan region - Iraq disagree with the present results, as he recognized high levels of IgG (34%) and IgM (27%) anti - toxoplasma antibodies in aborted women using ELISA test. While in the present study, low levels of IgG (10%) and IgM (2.9%) antibodies were detected using the same test.16 Moreover, results of the current study were in disagreement with the results of a survey done in both Iraqi cities, Mosul and Thiqar, in which 43% and 47% of aborted women were seropositive for IgG and IgM anti - toxoplasma antibodies respectively.21,22 Also, our results were in disagreement in the relation of IgG antibodies with the results done in Cameroon, in which 110 pregnant women of BOH were tested by using ELISA, and 70% of them had positive IgG which demonstrated high rates of past infection.28 This indicated that high rate of Toxoplasma infection might also be due to the geographical location, large spreading of stray cats, low hygienic and education levels, immune status, and socioeconomic status.

The results of the current research showed that 55/70 (78.6%) of the aborted cases were PCR positive, this agreed with the study done in Erbil province-Kurdistan Region, in which 47 samples of aborted placentae of BOH women were tested using PCR and 35 (74.46%) of them were PCR positive. This indicated the high sensitivity of PCR in comparison with other techniques.[18] The present results of serological and PCR tests partly agree with those done in Baghdad/Iraq, in which 120 of aborted women of BOH were tested by ELISA and PCR tests. In which IgM antibodies were detected in 4.16% of the cases and IgG in 25.83% of the cases, and 13.3% of the cases had both IgM and IgG antibodies.17 Results of the PCR in this study showed that 15.83% of the cases were PCR positive. While previous researcher showed low detection of PCR positive cases in comparison with the present results (high positive cases, 78.5%, this could be due to the inadequate sensitivity of the primers used in their study or a low affinity for the DNA target and using amniotic fluid samples rather than tissues of placentae.[20]

The results of the current study were in disagreement with the results of a study was carried out in Saudi Arabia, in which out of 137 pregnant women with BOH were tested by using ELISA and PCR. They revealed that 41% of the cases were PCR positive, and 36.6% of the cases were seropositive with IgG and 6.5% IgM anti-toxoplasma antibodies. Although, it showed that high sensitivity of PCR test but the reason of difference might be the

type of sample used in the previous study which was blood and persistence of immunoglobulin in blood for an extended period.[23]

Regarding PCR test, this study disagree with the results of a study in Shiraz/Iran, in which a total of 542 of aborted women were tested by PCR, 14.4% had PCR positive, while in the current study showed that 78.6% of aborted women were PCR positive. The difference between the rates of positivity might be related to the type of samples used in Iranian study, as they used paraffin–embedded blocks of aborted placentae.[26]

This research is in disagreement with the results of a study done in Mexico; in which 100 spontaneously aborted women were tested by both ELISA and conventional PCR. It has been found that 19% were PCR positive, 55% and 20% of the serum samples were seropositive for IgG and IgM anti-toxoplasma antibodies, respectively. The high rates of antibodies might be due to false positive results and cross-reactivity.[27]

Toxoplasma was more prevalent among the housewives than the employed women, in young ages (25-31) than older, furthermore, women in the first trimester were more infected than second and third, also with single abortion more than others.[19] In this study all examined women with BOH were suffering from abortions either once, twice or more. The percentage of one time was higher (48.8%) than twice and more, this is in agreement with the results of many other studies such as25 in India which found that a maximum number of cases of abortions (27.27%) were with single abortion, possible reasons might be the development of immunity against the infection or other pathogenic causes in case of repeated abortions.

Regarding to the education and occupation, in the present study higher number of illiterate (32) and housewives had toxoplasmosis versus literate (23) and employed women. It indicating the importance of education, with regard to occupation, housewives are at higher risks of infection than the employed women, because they have higher chances of exposure to sources of infection and are at high-risk during their homework such as dealing with raw meat and vegetables, in addition to their outdoor activities as gardening and cleaning outside the home.

Regarding residency, unexpected results were found in the present study, high rate of infection in urban women in comparison with rural women, this may be due to a large number of urban women examined in this study, or to the eating habits as more urban women attend restaurants and consume fast food. These results were in agreement with the results of[17] Baghdad and Yemen[29].

The results clearly indicated that the molecular method characterized by high sensitivity and specificity with no opportunity for false positive and false negative, results because of deals with specific genomic DNA of Toxoplasma.23 Therefore, PCR test is considered as a gold standard test for diagnosis, since out of 70 aborted women examined in the present study, 55 cases were PCR positive, while using serological test was 9 only. In addition unexpected result was found in 30 cases of full normal women, in which 22 cases had Toxoplasma infection using PCR test, this encourages to focus more on testing newly born infants against

toxoplasmosis. The possible reasons for this unexpected result might be due to the occurrence of the infection during the third trimester of pregnancy, because at this stage, the parasite does not affect the baby. This study revealed an important issue in our community and a further investigations is recommended in a wider scope introducing PCR as a confirmatory test in prenatal clinics to point out and treat acute cases of Toxoplasmosis infection in pregnant mother.

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پوختە

دە ست نیشانکرنا نەخوشیا توکسوپلازما ل ناف ئافرەتێن زاوکێن ژبە رچوویی ب ریکا پشکنینێن سیرولوجی و زنجیرین ئە نزیمێ پە لمە رکرنێ

ئارماج: نەساخیا پشیکا یا هاتیە گریدان ب گەلەك گرێی یاڤە ل دە ف ژنکێن دووگیان. دیارکرنا گەردی بو توکسوپلازمای گوندی ب ریکا کارلێکێن زنجیرەیێن ئەنزیمێ پەلمەرکرنی ل ناف وەریسێ مالیچووکی ێن زاروکێن ژبەرچوویی جیناێن دەستنیشانکری هاتینە خاندن.

مەرەم مە رەم ژ ڤێ ڤە کولینێ ئە و بوو دیارکرنا تووشبوون ب توکسوپلازمای گوندی ل دەف ژنکێن زاروك ژ بەر چوویی ێن خودان میژووبە کا زاروکبوونەکا خراب یا کەڤن و ژنکێن نورمال ب ریکا بکارئینانا تەکنیکێن سیرولوژی و گەردی.

کە رە ستە و ریکێن ب کارئینانێ ایلایزا و ریکا ئێکسە ر ا بلەز هاتینە ب کارئینان وە ك تێستێن سیرولوژی وکارلێکێن زنجیرە یێن ئە نزیمێ پە لمە رکرنی یێ کلاسیکی وەك تێستا گە ردی.

ئە ڤێ ڤە کولینێ ۱۰۰ ژن ب دە ست خووڤە گریدانبە ژ ماوێ(چریا ئێکێ–شوات ۲۰۱۵) ل باژێرێ دهوکێ.

حە فتێ ژنێن زاروك ژ بە ر چوویی هە ردوو زە ردا ف و وە ریسێ مال بچیکی زاروکێن وان هاتینە تێست کرن ب ریکێن سیرولوژی و گە ردی ل دیا ف ئێك ,بە لێ ۳۰ ژنێن نورمال وە ریسێ مالیچیکێ زاروکێن وان هاتینە تێست کرن ب تێستا گە ردی.

ئەنجام

ژ لایێ پشکنینێن سیرولوژیڤە ب ریکا ایلایزا , (۷/۷۰(٪۱۰ ژ ژنێن زاروك ژ بە ر چووی سیروپوزە تیڤ بوون بو دۆە تە نێ IgG دژی توکسوبلازمایێ و (۷۰(٪۲.۸ 2/ د پوزە تیڤ بوون بو دۆە تە نێ IgM دژی توکسوبلازمایێ.

ژ لایە کێ دیڤە ,تێستا ئێکسە را بلەز دیارکر , کو (۷۰(٪۷.۱ 5/ ژ ژنێن زاروك ژ بە ر چووی د پوزە تیڤ بوون بو دۆە تە نێن IgG و (٪۱۰) 7/70 بو دۆە تە نێن IgM دژی توکسوبلازمایێ.

ژ ۷۰ سامپلێن شانە ێن وە ریسێ مال بچووکی ب ریکا PCR یا کلاسیکی , (٪۷۸.۵) 55/70 ژ ژنێن زاروك ژ بە ر چووی د پوزەتیڤ بوون دژی توشبوونا توکسوبلازمای گوندی.

ژ لایێ ماوێ دوو گیانبوونێ ڤە ,ژ ۵۷ حالە تا ل سێ هە یڤێن دەستپێکێ ێن دوو گیانبوونێڤە , ایلایزا دیارکر 5(8.8%) , 1(1.8%) دۆە تە نێن IgG و IgM دژی توکسوبلازمایێل دیا ف ئێك هە بوون,بە لێ تێستا ئێکسە را بلە ز دیارکر کو (٪۷۰) ٤ و (٪۱۰ز۵) ٦ دۆە تە نێن IgG و IgM دژی توکسوبلازمایێ ل دیا ف ئێك هە بوون

بلندترین ریژا پوزەتیڤ (٪۷۵.٤)٤۲ بوو بو توکسوبلازمای گوندی بریکا PCR سێ هە یڤێن دە ستپێکێ ێن دوو گیانبوونێڤە.

ژ کوما ۱۰ حالە تان ل سێ هەیڤێن دووێ ێن دووگیانبوونێڤە , هاتبوونە دیارکرن کو (٪۲۰)۲، (٪۱۰) ۱ حالە تێن سیروپوزەتیڤ بوون بو IgG و IgM ب ایلایزا ل دیا ف ئێك و (٪۱۰) ۱ حالەتێن سیروپوزەتیڤ هاتبوو دیارکرن بو هە رئێك ژ IgG وIgM ب تێستا ئێکسە را بلەز ل دیا ف ئێك .ب تنێ(٪۹۰)۹ PCRد پوزەتیڤ بوون ژ سێ هە یڤێن دوویێ ێن دوو گیانبوونێڤە.

ژ ۲ حالەتا ژ سێ هە یڤێن سیێ ,خو سیروپوزەتیڤە ك نە بوو ب هە ردوو تێستان بەلی و هەرسێ حالەت (٪۱۰۰) ۲ PCRد پوزەتیڤ بوون.

دەرئەنجام

ئە ف ڤەکولینە نها دیارکر کو پێڤیبوون ب PCR وە ك تێستە کا موکم و پالپشت زێدە باری تێستێن سیرولوژی بو دە ست نیشانکرنا نە ساخیا پشیکا و ل دیا ف چوون بو زاروکێن شنی بووین ێن ب زاررکبوونە کا تمام یا نورمال.

الخلاصة

الكشف عن داء المقوسات بين النساء المجهضات باستخدام الفحوصات المصلية وتفاعل البلمرة التسلسلي في مدينة دهوك

الهدف: داء المقوسات أو Toxoplasmosis، إصابة بعدوى سببها طفيلي المقوسه الغونديه ينتقل من الحيوانات المصابة إلى البشر. داء المقوسات إذا اصاب النساء الحوامل قد يسبب الاجهاض وانه من الممكن تؤدي إلى ضرر بالغ للجنين.

الغرض: الغرض من الدراسة الحالية كانت تشخيص عدوة مقوسة غوندي في النساء المجهضات اللواتي لديهن تاريخ ولادي سيء مسبق و النساء الطبيعيات باستخدام التقنيات المصلية و الجزيئية.

المواد و طرق العمل: استخدم اختبار الانزيم المرتبط بالامتصاصية المناعية (الايلايزا) و تفاعل البلمرة التسلسلي التقليدي (PCR) ك(اختبار جزيئي). تضمنت الدراسة الحالية ١٠٠ امراة خلال الفترة من(تشرين الاول2014 – شباط ٢٠١٥) في مدينة دهوك. مجموع ٧٠ حاله من النساء المجهضات فحص مصلهن و مشيمات اجنتهن بالطرق المصلية و الجزيئة .بينما ٣٠ حاله فقط من النساء الطبيعيات فحص مشيمات اجنتهن بالاختبار الجزيئي.

النتائج: باستخدام الفحص المصلي الايلايزا، كشف ان (١٠%) ٧/٧٠ من النساء المجهضات كانوا ايجابيين مصلياً للاجسام المضادة IgG ضد التوكسوبلازما و(٢.٨%) 2/٧٠ للاجسام المضادة IgM ضد التوكسوبلازما. بينما من مجموع ٧٠ عينة من نسيج المشيمة فحصت بـ(PCR)، أظهر الاختبار الجزيئي PCR ان (٧٨.٥%) ٥٥/70 من النساء المجهضات كانوا ايجابيين ضد عدوة التوكسوبلازما.

وفقا لفترة الحمل، اظهرت الايلايزا من ٥٧ حالة في فترة الحمل الاولى انه (8.8%)5 و(1.8%)1 كانوا ايجابيين لـIgM, IgG ضد التوكسوبازما على التوالي، أعلى نسبة ايجابية كانت (٧٥.٤%)٤٣ ضد مقوسة غوندي بواسطة الـPCR في الثلث الاول من الحمل.

من مجموع ١٠ حالات في في الثلث الثاني من الحمل. اظهرت الايلايزا ان حالتين (٢٠%) ايجابيتين مصليا ل IgG وحالة واحدة (١٠%) ايجابية مصلياً ل IgM. وفقط ٩ (٩٠%) حالات كانوا ايجابيين لPCR. ولكن لا توجد اي حالات ايجابية مصلية لكلا الاختباريين بينما كل الحالات (١٠٠%) ٣ كانت ايجابية ل PCR في الثلث الثالث للحمل.

الخاتمة: أظهرت الدراسة الحالية معدلات عالية من الاصابة بداء المقوسات بين النساء المجهضات في مدينة دهوك– اقليم كوردستان في العراق، بالاضاف الى اهميه اختبار الجزيئي ال PCR و الاختبارالمصلي (الايلايزا) في الكشف و التاكيد على الاصابه بداء المقوسات الغوندية التوكسوبلازما.