Relationship Between Toxoplasmosis And Antiphospholipid Antibodies Igg , Igm In Aborted And Non Aborted Women .

العلاقة بين داء المقوسات وبين الأجسام المضادة للدهون المفسفرة نوع *IgM* , *IgG* في النساء المجهضات وغير المجهضات

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الخلاصة:-

الهدف : صممت الدراسة لتقدير الأجسام المضادة الدهنية نوع IgG و IgM مع مرضى داء المقوسات وعلاقته للنساء المجهضات وغير المجهضات. انتشار الأجسام المضادة للإصابة الحادة والمزمنة أكثر ألأسباب للإجهاض المنتشر الذي يتضمن داء المقوسات مع الأجسام المضادة باستعمال تقنية الاليزا.

المنهجية : شملت الدراسة 70 مريضة عراقية منهم النساء المجهضات وغير المجهضات، و30 أمراة صحيحة (اعتمدت كمجموعة سيطرة) إذ كانت النتائج سلبية للأجسام المضادة للدهون المفسفرة نوع IgG و IgM. نفذت خلال فترة تشرين الأول (2012) حتى كانون الثاني(2013). أجريت الفحوصات المختبرية في المختبرات التعليمية لمدينة الطب في محافظة بغداد باستعمال تقنية الاليزا للكشف عن الأجسام المضادة لداء المقوسات والدهون المفسفرة نوع IgG و IgM وحسب الطرق القياسية المشار إليها من قبل الشركات المصنعة.

النتائج : سجلت الفئة العمرية (21 – 30) سنة ارتفاعا معنويا ($P<0.05$) عند مقارنتها بباقي الفئات العمرية وكلا مجاميع الدراسة. كما لوحظ أن للجسم المضاد نوع IgG لمرضى داء المقوسات علاقة ايجابية ($P<0.05$) في النساء المجهضات أعلى من تلك التي لوحظت في النساء غير المجهضات. كما أظهرت الدراسة حالات انخفاضا معنويا ($P<0.05$) للأجسام المضادة للدهون المفسفرة نوع IgG و IgM حيث كانت ايجابية 58/12 (20,7 %) وسلبية 58/46 (79,3 %).

الاستنتاجات: بينت النتائج وجود ارتباط بين العامل المسبب لداء القطط والنساء المجهضات مع الاجسام المضادة للدهون المفسفرة ، وجود الاجسام المضادة لداء القطط ايجابية الاختبار في النساء المجهضات اكثر من النساء غير المجهضات وتكرار الاجسام المضادة للدهون المفسفرة نوع IgG و IgM في النساء المجهضات اكثر من النساء غير المجهضات.

التوصيات: لايمكن اعتماد الأجسام المضادة للدهون المفسفرة نوع IgG و IgM في تشخيص حالات الإجهاض. كما يمكن ان تكون هناك حاجة للدراسات لها علاقة للإصابة بطفيلي داء المقوسات والأحياء الدقيقة الأخرى مثل الفايروس العملاق والحصبة الألمانية مع متلازمة الدهون المفسفرة.

Abstract:

Objectives: The study was designed to an estimate the prevalence of antiphospholipid IgG and IgM antibodies with toxoplasmosis patients among aborted and non -aborted women.

Methodology: A total number of 70 Iraqi patients aborted and non–aborted women were included in the present study. In addition, a total of 30 apparently healthy women and negative for antiphospholipid IgG and IgM antibodies were selected as a control group. The study was carried out during the period from October 2012 till January 2013. Blood samples and laboratory investigation was in Teaching Laboratory of the Medical city of Baghdad, using to detect antibodies type IgG and IgM for antiphospholipid and Toxoplasma gondii by utilize ELISA technique according to standard procedures describe by manufacturer.

Results: The results showed that the age stratum (21–30) years was found to be highly frequent in both studied groups was significant ($P<0.05$). In addition, positive toxoplasmosis IgG antibodies testing in aborted women was higher than that observed in non - aborted women group, significant ($P < 0.05$). Present study illustrated that the total abortion cases was with positive in APL–IgM–Ab 12/58 (20.7%), whereas 46/58 (79.3%) was negative the statistical analysis were high significant. The results of our study demonstrate significant positive correlation between abortion toxoplasmosis IgG and IgM .

Conclusion: The present study demonstrates a strong association between infectious agent Toxoplasma gondii and abortion in women with antiphospholipids antibodies. Positive toxoplasmosis IgM and IgG antibodies testing in abortion more than non – abortion. The frequency of antiphospholipids antibodies IgM and IgG positive in abortion more than non- abortion.

Recommendation: cannot be according to the antiphospholipid antibodies IgG and IgM in abortion cases. So that further studies are needed to study the relationship between rubella virus and cytomegalovirus with antiphospholipid antibodies.

Keyword: Toxoplasmosis, Antiphospholipid antibodies, patients aborted and non aborted.

INTRODUCTION:

Maternal-fetal transmission of toxoplasmosis is dependent on the time of maternal infection. The earlier the fetus acquires the infection the more severe the consequences , however maternal – fetal transmission is more likely to occur later in pregnancy. Disseminated toxoplasma may cause fetal death [1]. Antiphospholipid syndrome (APS) is characterized by moderate- to- high levels of antiphospholipid antibodies (APA) and other clinical features , including recurrent pregnancy loss, fetal death , and thrombosis , preeclampsia , intrauterine growth retardation , premature labor and placental abruption. The effects of APA on pregnancy are significant: prospective fetal losses rise from 25 – 34% in the absence of APA to 90% in cases of untreated APA [2]. Antiphospholipid may affect any system and organ in the body including heart, kidney, skin , brain and placenta. This syndrome is predominant in (female to male ratio is 5 to 1) , especially during the childbearing years[3]. Antiphospholipids antibodies (APA) are characterized by thrombosis and uteroplacental insufficicency ; therefore , investigations proposed that thrombosis within the uteroplacental circulation leads to placental infarction and eventual fetal death. This hypothesis has been supported by numerous case reports and case series of extensive thrombosis, infarction and necrosis in the placentas of women with APA and fetal death[4]. This autoantibodies, increase the risk of blood clots that can block blood vessels in the placenta and lead to miscarriage and cause (5 to 10) percent of abortion [5]. An abortion is the removal or expulsion of an embryo or fetus from the uterus, resulting in or caused by its death.[6]. An abortion can occur spontaneously due to complications during pregnancy or can be induced. Abortion as a term most commonly refers to the induced abortion of human pregnancy, while spontaneous abortions are usually termed a miscarriage. The term abortion may also refer to the aborted embryo or fetus [7]. Aims of the study to study prevalence of antiphospholipids IgG and IgM antibodies among abortion and toxoplasmosis. Prevalence antibodies for acute and chronic infection for more causes of abortion spreading that including toxoplasmosis and antiphospholipid antibodies with utilizing ELISA technique.

MATERIAL AND METHODS :

Study groups :

The study was conducted on two groups, the first group were included 70 blood samples were taken from aborted and non aborted women whom referred to Medical city in Baghdad, a unit of immunological test to detect cause of abortion,the second group control group were included 30 blood sample taken from normal women ,age range was from 18 to 40 years. Sampling and laboratory investigation was in the Teaching Laboratories of the Medical City of Baghdad during the period from October 2012 till January 2013. Age groups as it is shown in table (1).

Table (1) : Distribution of patients and control groups according to age range.

Age groups	Test groups		Control groups	
	Frequency	Percent	Frequency	Percent
15 – 20	15/70	21.4%	5/30	16.7%
21 – 30	34/70	48.6%	14/30	46.7%
31 – 40	21/70	30.0%	11/30	36.6%
Total	70/70	100%	30/30	100%

Sample collection

Blood was collected from each individual ,3 – 5 ml of venous. The blood was allowed to clot naturally at room temperature , then the sera were separated after centrifugation at 1500 rpm

for 3 – 5 minutes. Haemolysis was avoided and each serum was divided into 2 –3 portions and placed into sterile plastic plain tubes using micropipette with sterile disposable tips. Each sample was then labeled by a serial number and the patient name . The sera were frozen at (-20 C˚) and later thawed. Sample at one time was subjected to the following serological tests: (Freezing-thawing was avoided)

1- Determination of anti-toxoplasmosis IgG and IgM antibodies by using ELISA technique .
2- Determination of antiphospholipids IgG and IgM antibodies by using ELISA technique .

Blood was collected and level of toxoplasmosis and antiphospholipids antibodies was estimated by Enzyme Linked Immunosorbent Assay (ELISA). Antiphospholipid antibodies IgG and IgM test (quantitative) . The tests were performed according to manufactures instruction by added 100 µ1 of diluted patient samples into the pipetting protocol.

Statistical analysis

In current ours study we used statistical program (SPSS) version (17.0) to study the significance between tests in each type of antibody IgG and IgM, present study used (Chi – square) to the data and appropriate (P< 0.05) consider significant in the direction of two[8].

RESULTS

Figure (1) showed that ,the studied groups were divided into the following age groups (15-20) , (21-30) , and (31-40) years ,and the results showed that the age stratum (21-30) years revealed highly frequent in both studied groups [abortion women (29/58) (50%)] and [non-abortion women (5/ 12) (41.6%)]with significant difference (p<0.05).

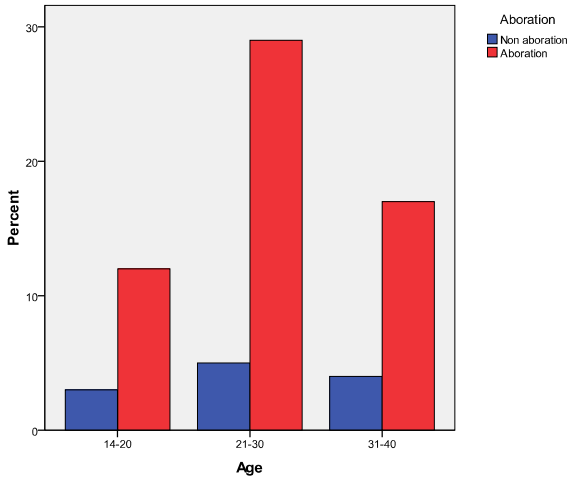

Figure (1): Distribution of aborted and non-aborted women according to age groups.

Table (1) and figure (2) shows that distribution in different patient groups (31/58)(53.3%) of abortion women and (7/12)(58.3%) of non- abortion women have positive IgM -Ab to toxoplasmosis respectively, while (27/58) (46.6%) of abortion women and (5/12) (41.7%) of non- abortion women have negative IgM–Ab to toxoplasmosis respectively . The statistical analysis reflects no significant (P> 0.05).

Table (1): Distribution of Abortion women and non abortion women according to toxoplasmosis IgM antibody.

Toxo IgM	Studies groups		Total
	Abortion	Non abortion	
Positive	31/58 53.3 %	7/12 58.3 %	38/70 54.3 %
Negative	27/58 46.6 %	5/12 41.7 %	32/70 45.7 %
Total	58/58 100 %	12/12 100 %	70/70 100 %

Test statistics	Chi – square	df	Asymp. Sig.
Toxo – IgM	.514[a]	1	.473 NS

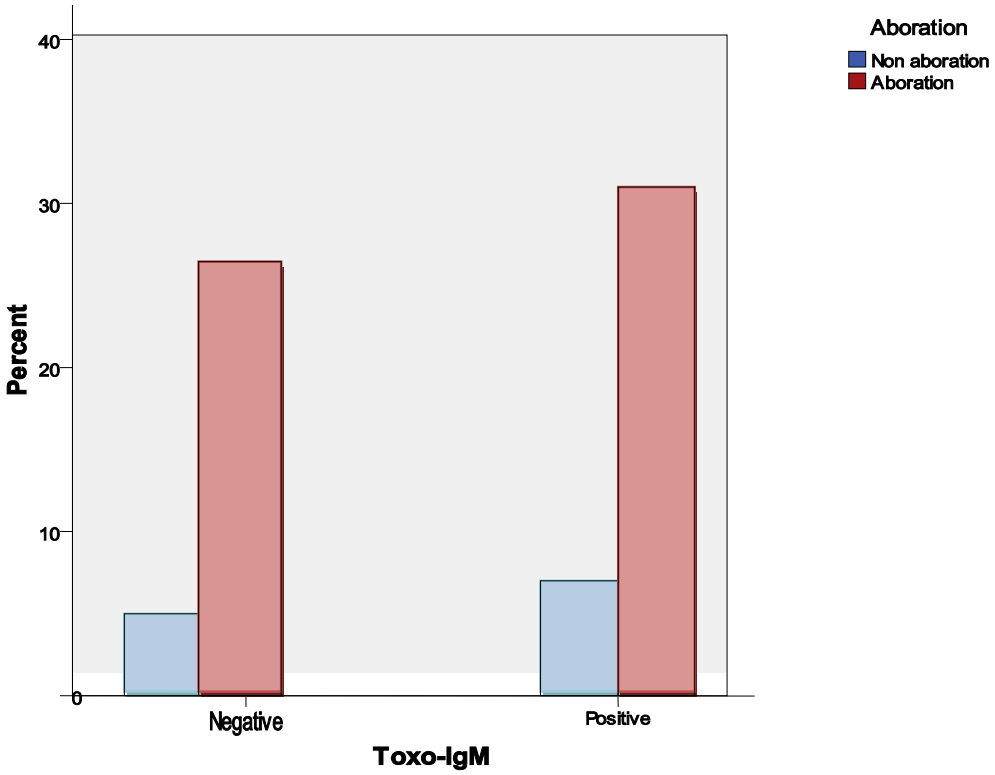

Figure (2): Distribution of abortion and non-abortion woman according to toxoplasmosis IgM antibody.

Table (2) and figure (3) shows the frequency of positive IgG – Ab for toxoplasmosis cases as distributed according to the abortion and non – abortion . The highest positive IgG – Ab in abortion (37/58) representing (63.7%) of the total (39/70) representing (55.7%) , while (2/12) representing (16.7%) of non- abortion. However, statistically there was significant (P< 0.05).

Table (2): Distribution of aborted and non - aborted women according to toxoplasmosis antibody.

Toxo IgG	Studies groups		Total
	Abortion	Non abortion	
Positive	37/58 63.7 %	2/12 16.7 %	39/70 55.7 %
Negative	21/58 36.3 %	10/12 83.3 %	31/70 44.3 %
Total	58/58 100 %	12/12 100 %	70/70 100 %

Test statistics	Chi – square	df	Asymp. Sig.
Toxo – IgG	.914[a]	1	.339 S.

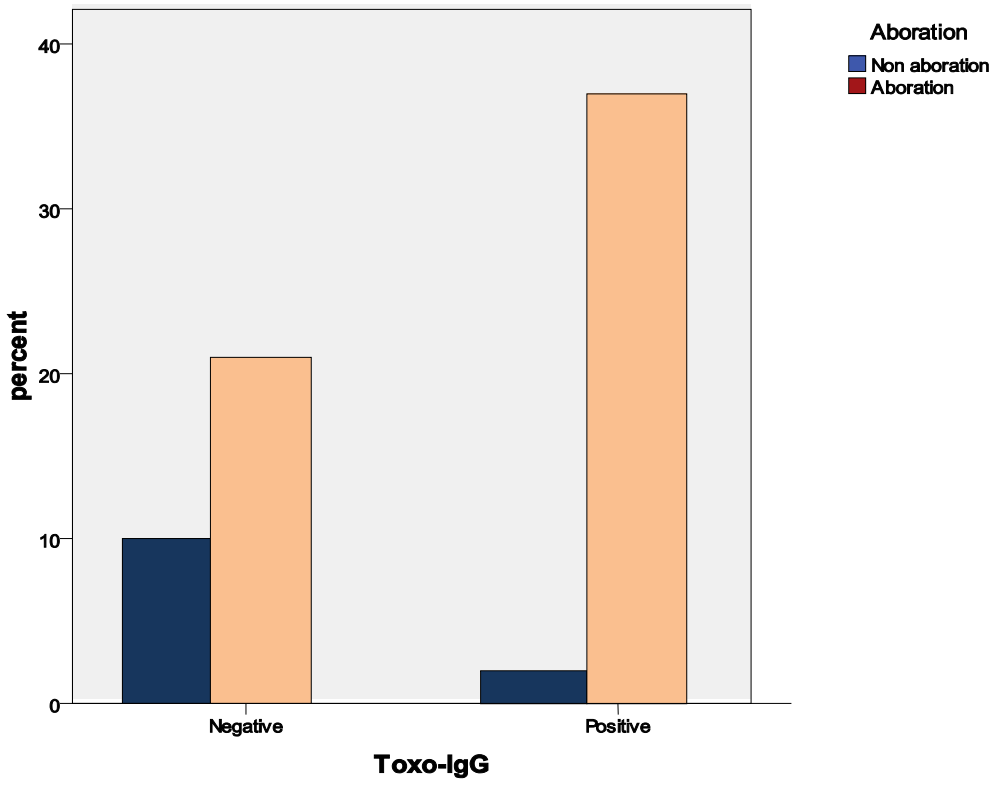

Figure (3): Distribution of abortion and non-abortion woman according to toxoplasmosis IgG antibody.

As it is shown in the table (3), (20.7%) of the total abortion cases was with positive in APL–IgM –Ab, whereas (79.3%) was with negative the statistical analysis were high significant.For the non–abortion group,the frequency(16.7%) for positive and(83.3%) for the negative. Comparing of such results statistically revealed a high significant (P< 0.01) difference between the abortion and non–abortion.In the same table,the total positive cases were(14/70) representing (20%) whereas the total negative cases were (56/70) representing (80%) of the total. Statistically the difference was a high significant.

Table (3): Distribution of aborted and non - aborted women according to antiphospholipid (APL) IgM antibody

APL – IgM	Studied groups		Total
	Abortion	Non – abortion	
Positive	12/58 20.7 %	2/12 16.7 %	14/70 20 %
Negayive	46/58 79.3 %	10/12 83.3 %	56/70 80 %
Total	58/58 100 %	12/12 100 %	70/70 100 %

Test statistics	Chi – square	Df	Asymp. Sig.
APL – IgM	25.200[a]	1	.000HS

Table (4) and figure (5) show the frequency of negative results in the test groups according to the studied groups. The highest frequency was noticed in the abortion (82.8%) compared to (17.2%) in the same group. The statistical analysis revealed high significant (P<0.01) between the negative and positive in the APL – IgG – Ab. For the non – abortion group, the frequency (100%) for negative and (0%) for the positive. Comparing of such results statistically revealed a high significant (P< 0.01) difference between the studied groups.

Table (4): Distribution of aborted and non - aborted women according to antiphospholipid (APL) IgG antibody

APL – IgG	Studied groups		Total
	Abortion	Non – abortion	
Positive	10/58 17.2 %	0/12 0 %	10/70 14.3 %
Negative	48/58 82.8 %	12/12 100 %	60/70 85.7 %
Total	58/58 100 %	12/12 100 %	70/70 100 %

Test statistics	Chi – square	Df	Asymp. Sig.
APL – IgG	35.714[a]	1	.000HS

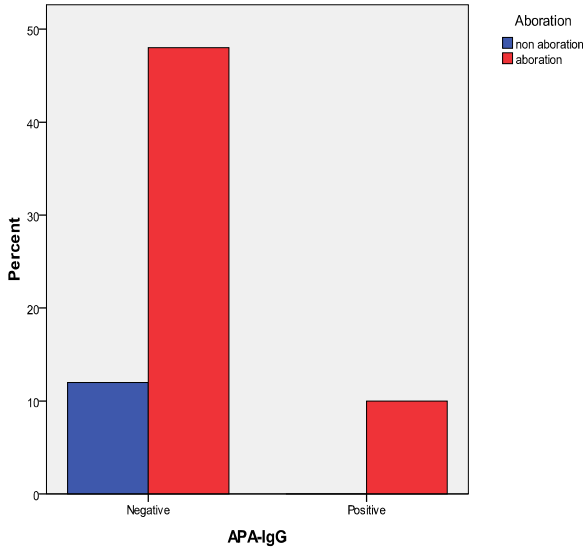

Figure (5): Distribution of abortion and non - abortion women according to antiphospholipid (APL) IgG antibody.

As it is shown in table (3) that there are correlation positive direction for abortion group between Toxoplasmosis IgG and IgM, however there are significant effect for toxoplasmosis ($P = 0.037 < 0.05$). So, there are correlation negative between IgG, IgM antibodies and APL – IgM that no significant on abortion group in same the table.

Table (5): Correlation between toxoplasmosis IgG, IgM & antiphosplipid (APL) IgM among aborted women.

Control Variables	Toxo – IgM	Toxo – IgG	ApL – IgM
Abortion Toxo –IgM Correlation Significance (2 – tailed)df	1.000 . 0	.251 0.037 S 67	-.042- 0.73 NS 67
Toxo-IgG Correlation Significance(2-tailed)df	.251 .037 S 67	1.000 . 0	-.076- .534 67
APL–IgM Correlation Significance(2-tailed)df	-.042- .734 NS 67	-.076- .534 67	1.000 . 0

DISCUSSION

Toxoplasma gondii . Is still more problems that cause abortion, still birth, premature delivery and congenital malformation in ours. In this study , the relationship between toxoplasmosis infection and increased antiphospholipid antibodies to aborted and non – aborted woman was evaluated. In this research a total of 70 women detected with toxoplasmosis, diagnosed by ELISA Technique for IgG and IgM antibodies. Out of the total 58/70 (82.9%) women were aborted , whereas 12/70 (17.1%) women were non – aborted. These results were in concordance with previous studies conducted [9,10]. The clinical complications associated with the occurrence of anti – cardiolipin antibodies are collectively known as anti – phospholipid syndrome: venous and arterial thrombosis , thrombocytopenia , spontaneous abortion , still births and premature births . According to the findings of this study, 14/70 (20%) of patients were positive for APL – IgM antibody. Previous studies in this field have 23 out of 117 young patients with stroke (7 males, 16 females 19.6%) were positive for both APL and ACL[11].

CONCLUSION

1- The present study demonstrates a strong association between *Toxoplasma gondii* infction and abortion in women. 2- Positive antitoxoplasmosis IgM and IgG antibodies testing in abortion more than non – abortion 3- The highest frequency of antiphospholipids antibodies IgM and IgG positive in abortion more than non – abortion.

RECOMMENDATION

1- Can not be according to the antiphospholipid IgG and IgM antibodies in abortion cases.
2- Further studies are needed to study the relationship between rubella virus, cytomegalovirus and parvovirus with antiphospholipid antibodies.

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