

The Importance of Auto-antibodies in the aborted Females with toxoplasmosis

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Abstract:

Background: Antiphospholipid syndrome (APS) is an autoimmune multisystem pathologic condition, characterized by recurrent arterial or venous thrombosis, pregnancy loss and thrombocytopenia. Also, APS were reported in many infectious disease including viral, bacterial, and parasitic infections (e.g. toxoplasmosis). There are however interesting association between the parasite response and specific auto-antibodies (aPL- serine Abs&aCL-Abs).

Objective: To represent the role of autoantibodies in association with toxoplasmosis in the occurrence of the recent abortion.

Patients and Methods: The present study included 76 women: 42 women had recent abortion and 34 healthy women with no history of abortion, which constitute the control group, their ages ranged between (15-40) years. ELISA method was used for detection IgM-Abs of T.gondii, aPL-serine Abs and aCL- screen Abs. in the blood samples collected.

Results: It was found that there was a statistical, high significant correlation between antiphosphatidyl-serine Abs and anti-toxoplasma IgM Abs, P-value<0.05. While no statistical significant correlation was found between anti-cardiolipin screen Abs and anti-toxoplasma Abs IgM Abs, P-value >0.05.

Conclusion: Antiphosphatidyl serine –Abs in association with acute phase of toxoplasmosis had important role in recent abortion, more than the role of anticardiolipin Abs.

Keywords: APS&toxoplasmosis, antiphosphatidyl serine- Abs, anticardiolipin Abs & abortion.

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Introduction:

Toxoplasma gondii (T.gondii) is an intracellular parasitic protozoan with worldwide infection rates estimated around 30% despite wide geographical variance (1,2). In many eastern European countries, including Romania, it has been assumed that chronic T.gondii is a common cause of infertility and abortion (3,4). Economic sanction against Iraq lead to lack medicine especially anti-toxoplasmosis drugs and affects on nutrition, controversy had role in visible increasing in the rate of abortions among women and congenital abnormalities (5). Also, Toxoplasmosis combines a strong cell mediated response both a Th1, cytokine profile and humoral response which results in production of specific antitoxoplasma Abs (ATXA). The role of infectious agents, mainly viruses and bacteria in the pathogenesis of autoimmune disease (AID) has been established in recent years (6). While parasitic infectious have been largely overlooked as parasitic elicit a complex immunomodulatory effect in the host (7,8). On the hand, geoepidemiological as well as experimental evidence may support protective effect of specific parasitic infections in the

susceptibility to autoimmunity (8). Antitoxoplasma Abs (ATXA) IgG are also associated with specific autoimmune disease (AID) nevertheless, the association between antiphospholipid syndrome (APS) with (ATXTA) antibodies of both Ig subclass is novel and further supported by the significant association of this serum reactivity of with serum autoantibodies specific for APS (e.g. anit-CL and aPL) Abs (7). Anticardiolipin Abs have a clearly documented association with recurrent abortion & fetal wastage in patients with autoimmune diseases and those with no apparent autoimmune disease (9). While antiphospholipid antibodies (aPL Abs) are heterogenous family of auto-Abs recognizing various phospholipid Ags (10). It well established that some aPL Abs particularly those found in patients with AID disorders like SLE or anti phospholipid syndrome may lead to thrombosis, multiple abortions and a wide variety of other complications (11,12,13). The antiphospholipid syndrome (APS) is an autoimmune, multisystem pathologic condition, which is characterized by recurrent arterial or venous thrombosis, pregnancy and thrombocytopenia (14). In the presence of antiphospholipid antibodies (APS-Abs) (14,15). APL-Abs were reported in many infectious diseases including (viral, bacterial, and parasitic infections), where in contrast to auto-immune diseases, they do not seem to be associated with thrombosis, this led to distinguish pathogenic and non-pathogenic APL (16).

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Patients and Methods:

The present study included 76 women, 42 women of patients group all had IgM-Abs. of T.gondii and had recent abortion ,their ages range from(15-40)years . And control group consisted of 34 women with no history of abortion and all had negative results of IgM-Abs of T.gondii. All samples were collected from Baghdad Teaching Laboratories/Medical City/Baghdad from a period 2010 to 2011 ,all samples were diagnosed in AL-Saadar Teaching Hospital/Baghdad by ELISA methods (Immunchem./Biotechnology Company Kits) for detection aPL serine-Abs and aCL screen Abs (17,18).

Results:

The mean of ages of patients group was 24.761 with S.E. 0.88 (Table 1),while the mean of age of control group was 25.205 with S.E. 1.145 (Table 1).

Table (1): The Differences Between The Ages of The Control and Patients Groups.

Age of the group	N	Mean	Std. Deviation	Std. Error Mean	P - value
Patients group	42	24.7619	5.71182	0.88135	(P > . . .) not sig.
C Control group	34	25.2059	6.67778	1.14523	

T-test was applied, it was found that there was statistically no significant correlation between the mean of ages of the two groups (p >0.05). Fischer Exact test was applied Table(2) , to compare the results of antiphosphatidyl serine –Abs in patients group and controls group, it was found that there was statistically highly significant correlations between the results of antiphosphatidyl serine –Abs in patients group infected and (IgM-Abs.) of T.gondii (P<0.001).Since there was 50% of patients had anti-phosphatidyle serine-Abs. While there was 50% of patients did not have antiphosphatidyl-serine Abs.

Table(2):The Percentages Of The Antiphosphatidyl – serine Abs in Both Patients And Control Groups.

	Anti-PL.Serine Abs. by ELISA		Total	P-value
	neg.	posit.		
Patients Group	No. 21 % 50.0%	21 50.0%	(55.3) 42	(P<0.001) sig.
Control group	No. 31 % 91.2%	3 8.8%	(44.7) 34	
Total	(68.4%)52	(31.6%)5	76	

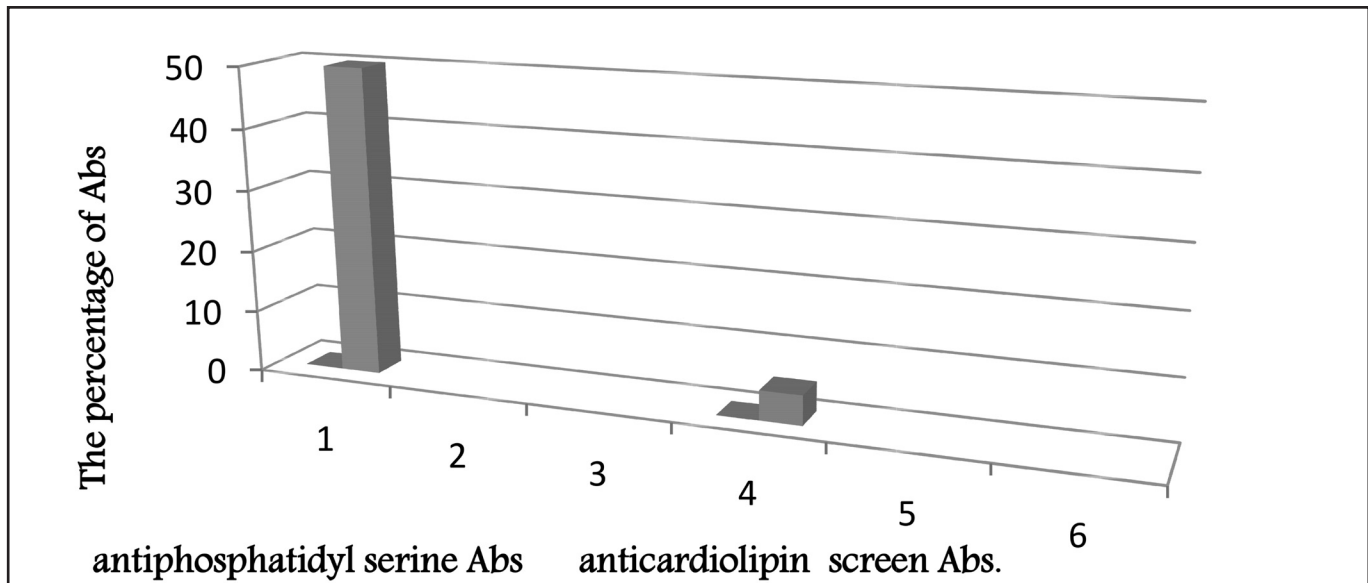
Table (3) showed that there was 95.2% women of the patients group did not have Anticardiolipin Abs. While 4.8% women of the patients group had Anticardiolipin Abs. While there was

91.2% women of the control group did not have anticardiolipin Abs, while 8.8% women of control group had anticarciolipin screen–Abs ,when Fischer Exact Test was applied it was found no significant correlation between the anticarciolipin screen–Abs and(IgM-Abs.) of T.gondii in patients group (p>0.05). While

Table(3): The Association Between The Anticardiolipin screen- Abs In Patients And Control Groups.

	Anticardiolipin Abs screen		Total	P-value
	neg.	posit.		
Patients group	No. 40 % 95.2%	2 4.8%	(55.3) 42	(P>0.05) sig.
Control group	No. 31 % 91.2%	3 8.8%	(44.7) 34	
Total	(93.4%)71	(6.6%)5	76	

The results of Figure(3) showed the percentages of positive results of both antiphosphatidyl serine Abs .and anticardiolipin screen Abs .of women in patients group the percentage of antiphosphatidyl screen Abs was (50%)and %(4.8) of anticardiolipin Abs.



Figure(3):The Percentages Of Both Antiphosphatidyl-serine Abs. And Anticardiolipin screen Abs. In Patients Group .

Discussion:

Toxoplasma gondii is an intracellular parasitic protozoan with worldwide infection rates around 30% despite wide geoepidemiological variance (2).The association between parasitic infections and autoimmune disease(AID)remains elusive .There are however interesting association between the parasitic response and specific auto-Abs ,it reflects a direct association with either toxoplasma or related infection on either the initiation or exacerbation of AID (1). Since Table (2) showed that there was 50% of women infected with acute toxoplasmosis had antiphosphatidyl serine –Abs, while 8.8% of women of control group had the same Abs. These results of the present study agreed with that reported by(19) that high prevalence of elevated antiphosphatidyl-serine Abs. IgG was seen in cases with the strongest risk above the 99th percentile like spontaneous miscarriage(RSM).The results of Table (3),showed that that there was 4.8% of women of patients group infected with toxoplasmosis, had anticardiolipin-screen Abs ,and 8.8%of women of control group had the same Abs, suggested with that reported by (20)that evidence of APS was detected including high titers of anticardiolipin Abs and anti-toxoplasmosis IgG Abs and also low titer of C3,C4 .In addition (19)(reported that the presence of anticardiolipin Abs (aCL-Abs)has been associated with recurrent arterial and venous thrombosis, recurrent fetal loss, thrombocytopenia and neurologic events therefore immunologic methods can be used to detect anticardiolipin Abs.In addition anticardiolipin Abs comprises a heterogeouns group of Abs namely Abs to anticardiolipin (aCL-Abs, β -2glycoprotein I(β -2GP I))and lupus anticoagulant. APS can be a primary condition, but can be also accompany other autoimmune disease, infection &malignancies(21,22,23). Figure(3)showed the high of positive results of antiphosphatidyl Abs than the results of

anticardiolipin Abs in patients group in the present study, these results explain the important role of these Abs in the occurrence of abortion, these results agreed with that reported by (9) that antiphospholipid antibodies(aPL-Abs) are heterogenous family of auto-Abs recognizing various phospholipid Ags. Also, it well established that some aPL-Abs, particularly those found in patients with autoimmune disorders like SLE or antiphospholipid syndrome(APS),may lead to thrombosis, multiple abortions, thrombocytopenia and wide variety of other complications(11,12,13).In addition accumulating reports have established that many infections may not only trigger the production of aPL-Abs ,but also appear be associated with APS clinical manifestations(24,25,26). Some investigators have suggested that the use of phosphatidyl serine Abs which belong to antiphospholipid Abs in place of anticardiolipin Abs in ELISA tests ,enables more specific diagnosis that can prove the clinical sensitivity in patients samples,Also high prevalence of elevated anti-PS IgG was seen in cases with the strongest risk above the 99th percentile (19). Since autoimmunity abnormalities , and especially (though not exclusively)IgG-antiphospholipid antibody abnormalities have also been statistically associated with pregnancy-associated hypertensive conditions(26)and so-called intrauterine growth retardation of the fetus(27,28).

Author Contribution:

Suha A.AL-Fakhar: Collection of samples &writing of the research.

Raad A.AL-Asad

y: Lab. Investigations.

Huda A. Rasheed: Statistical analysis.

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