

## Assessment of anticardiolipin and antiphosphatidylserine antibodies in women with recurrent abortion

Ahmed J. Al-husynee  
Department of Obstetric and Gynecology, Mosul Medical College.

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### ABSTRACT:

**Objective:** To assess the prevalence of anticardiolipin (ACL) and antiphosphatidylserine (APS) antibodies in women with repeated abortion in Mosul region.

**Methods:** Women with history of three or more recurrent spontaneous abortions in their first trimester were studied, for ACL and APS antibodies in their sera by enzyme linked immunosorbent (ELISA). Fifty normal pregnant women during the first trimester were included as a control. Chi –squared test was utilized for evaluation.

**Results:** One hundred –sixty women were tested. ACL and APS were detected in 45/160 (28%) & 22/160 (13.7%) respectively. These antibodies were negative in all control group.

**Conclusion:** Positivity of ACL antibodies among women with recurrent spontaneous abortion is a common finding in Mosul region. The use of low dose aspirin plus heparin in management of such women had successful result.

### الخلاصة:

**الهدف:** معرفة مدى وجود مضاد الكاردوليبيين (ACL) ومضاد الفوسفاتيداييل سيرين (APS) لدى النساء اللاتي لديهن إجهاضات متكررة في منطقة الموصل.

**طرائق البحث:** شملت الدراسة النساء الحوامل في الثلث الاول من الحمل ممن لديهن تاريخ ثلاثة اجهاضات تلقائية أو أكثر بإجراء فحوص للتحري عن وجود اجسام مضادة لكل من ACL ، APS في مصل الدم بطريقة ELISA كما شملت الدراسة مجموعة سيطرة من (٥٠) امرأة طبيعية الحمل وفي الثلث الاول من الحمل أيضا قيمت النتائج بحساب مربع كاي ( $\chi^2$ ).

**النتائج:** شمل الفحص ١٦٠ امرأة . وجد ACL ، APS لدى ٤٥ (٢٨%) و ٢٢ (١٣,٧%) على التوالي ، ولم نجد أي نتيجة ايجابية لأي الفحصين للجسمين المضادين ACL ، APS لدى النساء في مجموعة السيطرة.

**الاستنتاج:** ان ايجابية فحص ACL لدى النساء اللواتي لديهن تاريخ اجهاضات تلقائية متكررة كثيرة الحدوث في منطقة الموصل. وان استعمال الاسبيرين بجرعات يومية صغيرة مع الهيبارين في تدبير هذه الحالات يعطي نتائج طبية.

The aetiology of recurrent abortion is multifactorial. Patients with recurrent abortion after excluding<sup>(1)</sup> anatomical, physiological and endocrine pathology and still had unexplained recurrent abortion not infrequently demonstrate other abnormalities including APS and ACL antibodies<sup>(2)</sup>. These antibodies are directed against anionic phospholipids or protein phospholipids complexes as in antiphospholipid syndrome (characterized by thrombosis, placental dysfunction, fetal death and the present of circulating antiphospholipid antibodies)<sup>(3)</sup>. History of recurrent pregnancy loss necessitating testing for antiphospholipid (APL) including (ACL and APS) antibodies<sup>(4)</sup> Even with implantation failure by miscarriage, (APL) antibodies have been detected<sup>(5,6)</sup>.

The ACL antibodies positivity may be the most sensitive method in detecting and thus helping in preventing fetal loss<sup>(7,8)</sup>.

The aim of this report is to assess the status of such antibodies among women with recurrent abortion in Mosul.

#### **Patients and Methods:**

Women with history of three or more consecutive unexplained repeated abortion during the first trimester were included in the study.

Women were visitors of a private clinic. For all women, serum samples were tested for the presence of ACL IgG and APS IgG antibodies by ELISA technique in a private laboratory according to the principle of Harris et al<sup>(9)</sup>.

Fifty normal pregnant women during the first trimester were included as a control. The study extended from January 2003 until December 2006.

Both antibodies were tested twice with an interval of 5-6 weeks for each woman. Results of the tests were calculated against concentration, were interpreted in GPL units as <15 (negative), 15-19 (border line), 20 -80 as (positive) and > 80 (high positive).

Percentage calculation and Chi-square test were performed to find out the significance of ACL and APS antibodies among the total<sup>(10)</sup>.

#### **Results :**

One – hundred – sixty women with unexplained recurrent spontaneous abortion were included. Their mean age was (28 years  $\pm$ 4). Forty five (28%) of these women had positive ACL IgG antibodies and were negative for APS antibodies. In the remaining 115 (negative ACL IgG antibodies) women, 22(19%) were positive for APS antibodies. So both ACL and APS antibodies were found in (41.8%) (67/160) of women with recurrent abortion.

Ninety three (58.2%) women with repeated abortion were found to have a negative ACL and APS antibodies in their serum.

The ACL IgG antibodies were more significantly seen than APS IgG antibodies with (  $P < 0.001$ ). There was no significant difference for both ACL and APS antibodies between positive and high

positive cases. These antibodies were negative in all control cases.

Those cases with positive ACL IgG or APS IgG antibodies on one occasion, they received aspirin tablet 100 mg daily until 36 weeks of pregnancy and those who are positive on two occasions, they received heparin 5000 IU two times daily subcutaneously up to 36 weeks of gestation. Such cases completed their pregnancy without complications and they had full term baby. Women with negative antibodies (ACL and APS) they did not receive such therapy and we had a difficulty to follow them.

### **Discussion:**

In our study we showed that 28% of women with recurrent abortion had a positive result for ACL. Our results were consistent with the other studies that 8-42% of recurrent abortion is due to ACL antibodies.<sup>(11,12,13)</sup> Also in this study our findings indicated that (13.7%) of women with repeated abortion were positive for APS. The significant percentage of positive ACL has been noted in the sera of women who had repeated pregnancy loss of unknown etiology<sup>(14)</sup>.

It is important to note in this study that patients with negative ACL antibodies had recurrent abortion in which 22/ (19%) had positive APS antibodies. The IgG ACL was mentioned to be more significant than IgM in causing repeated abortion<sup>(15,16)</sup>.

In this study 67(41.8%) were considered to have antiphospholipid (ACL and APs) antibodies positive, comparable with

other study; this finding was 74%<sup>(1)</sup>.

Antiphospholipid syndrome (APLs) is also presented with lupus anticoagulant. Although lupus anticoagulant and ACL antibodies are present together in (APLs), these antibodies are not the same and many patients have one antibody only<sup>(17)</sup>.

Many studies discussed the role of antiphospholipid antibodies on the outcome of pregnancy, even in association with implantation failure as antiphosphatidylserine (APS) antibodies<sup>(18)</sup>. So in this study we explained the significant role of APL antibodies such as ACL and APS in the occurrence of repeated abortions, especially with the successful outcome for our cases after they received the aspirine and the heparin therapy as mentioned by other<sup>(19,20)</sup>.

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