



## Original Article

## Role of Antiphospholipid Antibody in Early Pregnancy Loss

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## ARTICLE INFO

## A B S T R A C T

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**Aim & objective-** To detect correlation between antiphospholipid antibodies in early pregnancy losses. **Material & Method-** In this study 70 patients were taken from the department of obstetrics and gynaecology of M.L.B. Medical College, Jhansi in year 2013. Patients were investigated for antiphospholipid antibodies and lupus anticoagulant after complete history, examination and investigation of recurrent pregnancy loss. Patients were divided in two groups.

Group -1: Patients having history of 2 or more abortions. (Study group)

Group -2: Patients having normal obstetrical history. (Control group)

**Results-** Majority of patients study group were in range of 20-25 year age group. Majority of abortions (68.89%) occurred during 1<sup>st</sup> trimester. Positive test for antiphospholipid was 6.67% (3 patients) in study group while none was positive in control group (P=<.001%). Majority of positive patients were positive for anticardiolipin antibody.

**Conclusion-** Antiphospholipid antibodies have a definite role in early pregnancy loss.

**Key word-** Antiphospholipid antibody, Recurrent pregnancy loss.

## 1. INTRODUCTION

Antiphospholipid antibody is important cause of early spontaneous pregnancy loss. Patients with history of early pregnancy loss needs to be evaluated during preconceptional period or six weeks postpartum. The common cause for these pregnancy complications such as thyroid disorder, diabetes mellitus, hypertension, chronic systemic illness should be ruled out with proper history, examination, lab investigations and

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special investigation like parenteral karyotyping, diagnostic laparoscopy. In absence of these common causes patients were investigated for antiphospholipid antibodies.

Antiphospholipid antibodies are group of antibodies that bind to negatively charged phospholipids. These antibodies have been associated with thrombotic events which could lead to pregnancy loss. Overall 3-5% population is positive is positive for antiphospholipid antibody. These can be identified by ELISA and other test for anticoagulation.

Various manifestations are early pregnancy loss (<10weeks), late fetal losses(>10weeks), premature birth, abruption placenta, Eclampsia, preeclampsia, HELLP Syndrome, peripheral thrombosis, neurological manifestations, cardiac manifestation, pulmonary manifestations. The exact mechanism of action of APA in relevance to fetal loss is still uncertain, but it appears to act on the placenta and its underlying decidual vessels. Decidual vasculopathy, thrombosis, extensive infarction and necrosis in the placenta of women with APA was documented in many studies and linked to fetal death.<sup>1</sup>

Antiphospholipid antibodies (APA) comprises a heterogeneous group of autoantibodies directed against negatively charged phospholipids and include lupus anticoagulant (LAC) and anticardiolipin antibodies (ACL).<sup>2</sup> The importance of these antibodies stems from their established association with thrombosis, thrombocytopenia and recurrent fetal loss.<sup>3</sup> The first well documented association between antiphospholipid antibodies and recurrent fetal loss was reported in 1975 by Nilsson and coworkers.<sup>4</sup> Thereafter, many reports documented the latter association and studied the prevalence, clinical and laboratory associations of the antiphospholipid antibodies in the general obstetric population and in those with recurrent fetal loss in western countries.<sup>5</sup> However, such reports from

developing and Asian countries were not as frequent, and more studies from the latter countries are important, particularly because interethnic differences (which may be due to genetic and/or environmental factors) have been noted both in the frequency and the clinical complications of these antibodies.<sup>6</sup> The aim of this study, which is the reported from M.L.B. Medical College Jhansi, is to determine the prevalence of the antiphospholipid antibody in recurrent pregnancy loss.

## 2. MATERIAL AND METHOD

This study was carried out in department of obstetrics and gynaecology M.L.B. Medical College, Jhansi. Patients were selected from the outpatient department and ward of department of obstetrics and gynaecology of M.L.B. Medical College, Jhansi.

Total 70 patients were taken to conduct this study.

These patients were included in two groups –

Group-1: patients having history of 2 or more spontaneous abortion.

Group-2: patients having normal obstetrical history. Served as control.

A detailed history of each patient was taken followed by thorough general, systemic, local examination and investigation.

After counseling and informed consent 20ml of blood was drawn from the patient. Blood sample was mixed with 3.2% trisodium citrate (1:9 ratios) sample centrifuged at 3500-4000rpm and stored at 70 degree centigrade. This sample was used for testing lupus anticoagulant & anticardiolipin antibody. Anticardiolipin antibody were measured by ELISA method. Both IgG and IgM type of aCL were assayed. The enrollees had their IgG and IgM anticardiolipin antibodies assayed by ELISA, and Lupus anticoagulant by a combination of the following screening tests: Activated Partial Thromboplastine Time (APTT), and Partial Thromboplastine Time-LA (PTT-LA), Kaolin Clotting Time KCT).

### 3. RESULTS AND DISCUSSION

Antiphospholipid antibodies are an important cause of early pregnancy loss. The patients included in this study were between 16-35 year. Mean age of study group was 25.59 years and majority of patients of study group were in range of 20-25 year age group (Table I).

**Table I: Distribution of cases according to age**

S.No.	Age in year	No. of patients	Percentage (%)
1	15-20	4	5.57
2	20-25	30	42.85
3	25-30	25	35.71
4	30-35	11	15.71

Majority of patients of study group were in range of 20-25 year age group.

Patients in group 1 and group 2 were subjected to antiphospholipid antibody investigation. In our study 45 (64.28%) patients were in group -1 having 2 or more recurrent abortions (Table 2).

**Table -2: Distribution of cases according to obstetrical history**

S.No.	Groups	No. of patients (n=70)	Percentage (%)
1	1	45	64.28
2	2	25	35.72

In our study 45 (64.28%) patients were in group-1 having 2 or more recurrent abortions.

In group-1 6.67% patients (3/45) patients were positive while in group 2 none of the patients were positive (P<.001) (Table 3).

**Table 3: Distribution of cases according to result of antiphospholipid antibodies**

S.No.	Group	Total No. of cases	Positive patients	Percentage of positive patients
1	1 (study)	45	3	6.67
2	2 (control)	25	0	0

Majority of patients in study group were having negative result for antiphospholipid antibodies test, only 3 patients (6.67%) are positive while in group 2 none of patients were positive for antiphospholipid antibody (P<.001).

In this study in group 1, 1 patient was positive for lupus anticoagulant antibody (2.22%) and 2 patients were positive for IgG anticardiolipin antibody (4.45%), none of the patients were found positive for IgM anticardiolipin antibody and lupus anticardiolipin antibody (Table 4).

Maximum number of patients in Group 1 experienced abortion mainly during 1<sup>st</sup> trimester (upto 12 weeks) (Table 5).

Yasuda M et al in his study concluded that anticardiolipin antibody positive patients has 25% abortion in comparison to 9.8% negative group. He concluded that antiphospholipid antibody are associated with abortion.

**Table 4: Distribution of cases according to antiphospholipid antibodies in Group-1**

S.No.	investigation	No. of positive patients (45)	Percentage
1	LAC	1	2.22
2	IgG anticardiolipin	2	4.45
3	IgM anticardiolipin	0	0
4	IgG & IgM both	0	0

Majority of positive patients were positive for IgG anticardiolipin.

**Table 5: Distribution of patients according to duration of abortion in Group-1**

S.No.	Duration of abortion	No. of patients	Percentage
1	Upto 12 weeks	31	68.89
2	12-20 weeks	14	31.11

Majority of abortions occur during the 1<sup>st</sup> trimester (upto 12 weeks)

**Table 6: Comparison of Indian studies in literature**

Author	Number of case and control	ACL	LA	Both	Special feature
Kumar et al <sup>6</sup>	107 each	33/82 (40.2)	11(10.3)	2	Nil
Velayuthrapeabhu et al <sup>9</sup>	Recurrent abortion 155 , no control	62(45)	Not included		Studies APS antibody
Srikrishna et al	Recurrent abortion 72, no control	10 (21%)	2 (4.2%)		Cases of SLE and thrombosis
Kaneria et al	50 each	14 (28%)	6 (12%)	3	Cases of BOH
Mishra MN,	Recurrent abortion 120	34	9/60	3/120	
Gupta Sapna,	and control 60	(28.3%)	(15%)		
Gupta MK <sup>10</sup>	Present study				
	Recurrent abortion 45 and 2/45(4.45%) 1/45(2.22%) none control 25				

ACL –Anticardiolipin antibodies, LA-lupus anticoagulant, BOH- bad obstetric history, APS- antiphospholipid serine antibody, SLE -systemic lupus erythematosus.

Kumar et al in his study with patients with recurrent abortion found 11 out of 107 were positive antiphospholipid antibodies.(10.28%).<sup>6</sup>

Parazzini et al (1991) concluded a case control study with female having 20 or more consecutive spontaneous abortions. He had 7% patients positive for lupus coagulation positive and 19% patients positive for anticardiolipin antibody. There result offer

quantitative evidence in association between antiphospholipid antibody and recurrent abortions.<sup>7</sup>

Yamada et al (2003) concluded on his study that lupus anticoagulant was positive in 1.8% and anticardiolipin in 9.7% patients with recurrent abortions.

Velayuthrapeabhu et al concluded that in a study conducted on 155 women with recurrent abortion 62-40% were positive for anticardiolipin antibody.<sup>9</sup>

Cauto et al (2005) concluded that in 88 patients with recurrent abortion 1.1% are positive for lupus anticoagulant and 12.5% were positive for anticardiolipin antibody.

Amel AA Al Samarrai et al concluded that the women were aged between 19 and 45 years (median 30 years). Fifty three (26.5%) had one or both anticardiolipin antibodies present, while 27 (13.5%) were positive for lupus anticoagulant. The KCT and KCT index appeared to be the most sensitive tests.<sup>7</sup>

In study of Ilham M. JwadIn et al women with pregnancies that ended with a loss, 17.6% were positive of ACA, compared with none among the control group.<sup>8</sup>

A statistically significant association between ACA and RM has been reported in many case-control studies (Unander et al., 1987; Barbui et al., 1988; Parazzini et al., 1991; Parke et al., 1991) and autoantibodies including ACA can be found in 20% of these patients (Stephenson, 1996). However, some large case-control studies have failed to show a statistical significant association between ACA and RM or sporadic pregnancy losses (Infante-Rivard et al., 1991; Gris et al., 2000)

From present study we can conclude that antiphospholipid antibody have association with recurrent abortion (7%) especially in 1<sup>st</sup> trimester . this is comparable to study conducted by Cauto et al (2005) study having 13.6% positivity for antiphospholipid

antibodies and Kumar et al study having 10.28% positivity antiphospholipid antibodies (Table VI).

#### 4. CONCLUSION

Majority of patients (42.85%) were in range on 20-25year age group. Patients in both group were studied for investigation of antiphospholipid antibody especially anticardiolipin antibody and lupus anticoagulant antibody. 6.67% patients were found positive for antiphospholipid antibody in group1 and none in group 2. (P value <.001) and it is statistically significant.

Most of the abortion in group 1 occurs in 1<sup>st</sup> trimester.

Above result conclude that antiphospholipid antibody have definite role in early pregnancy loss.

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