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Brief Report

Comparison of Antiphospholipid Antibodies between Preeclamptsia and Normal Pregnant Women

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Abstract

Antiphospholipid antibodies (APLA) may be detected in normal pregnancies and also may cause thrombosis, recurrent fetal loss, placental infarction and preeclampsia. In the present study the possible differences in APLA titer between healthy pregnant women and preeclampsia cases without history of thrombosis was examined. The APLA titer in 50 healthy pregnant women with 50 preeclampsia cases without the history of thrombosis and autoimmune disease was compared. Preeclampcia is defined as hypertension ≥140/90 mmHg after 20 weeks of gestation and proteinuria > 300mg/24h. IgG and IgM anticardiolipin antibodies were measured by immunoassay methods and Teclot kits for lupus-like anticoagulant antibodies were used. In normal pregnant women, 6% had lupus-like anticoagulant antibody, 12% had IgG anticardiolipin antibody, and 26% had IgM anticardiolipid antibodies. In preeclapsia, 8% lupus-like anticoagulant antibody, 4% had IgG anticardiolipin antibody, and 30% had IgM anticardiolipid antibodies. Despite the evidence of prothrombotic state during preeclampsia, it is unlikely that antiphospholipid antibodies represent as a risk factor for preeclampsia among women without the history of thrombosis or autoimmune diseases.

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Keywords ● Antiphospholipid ● anticardiolipin ● anticoagulant ● antibody ● preeclampsia

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Introduction

Antiphospholipid antibodies include Lupus-like anticoagulant antibody and anticardiolipin antibody are heterogenic antibodies against the proteins which are bind to the anionic phospholipids.[1] Although, these antibodies may be seen in normal pregnant women but there are evidences which indicate the association of these antibodies with systemic thrombosis, low platelet and recurrent fatal death.[2,3] Placental infarction may lead to some complications such as idiopathic fetal growth restriction, fetal death and preeclampsia.[4] Preeclampsia is a common problem in pregnancies, it is also one of the three common causes of maternal death, whereas, early diagnosis in high-risk women has a main role in managing of these cases and may decrease the complications of preeclampsia.[3]

There are many contradictory comments about the relationship between preeclampsia and antiphospholipid antibodies and there are suggestions regarding anticoagulant therapy

in antiphospholipid antibody positive pregnancies.[2,4,5] Therefore, in the present study, antiphospholipid antibodies in normal pregnant women and preeclampsia cases without any history of previous preeclampsia, thrombosis or systemic autoimmune disease were compared.

Table 1: Comparison of the prevalence of antibody positive anticardiolipin (IgM) (IgG), lupus like anticoagulant (Lupus) and antiphospholipid (Antiph) in healthy pregnant women and preeclampsia

Group	IgM	IgG	Lupus	Antiph
	No (%)	No (%)	No (%)	No (%)
Preeclampsia	15 (30)	2 (4)	4 (8)	16 (32)
Healthy pregnant	13 (26)	6 (12)	3 (6)	19 (38)
Odds Ratio	0.82	3.27	0.73	1.3
95% CI of odds ratio	0.34, 1.97	0.63, 17.07	0.16, 3.46	0.57, 2.97

Patients and methods

This prospective, cross-sectional case-control study was performed over a period of one year. Fifty preeclampsia (patient group with mean aged 26±2 yrs) and 50 healthy pregnant women as control group (mean aged 27±2 yrs) were matched.

Measurements

Two–blood samples were taken from each individual. In one blood sample IgG and IgM anticardiolipin antibodies were measured using immunoenzymatic assays method. This second sample was centrifuged for 15 min in 2500 RPM and its plasma temperature was reduced to 2-8ºC to evaluate lupus like anticoagulant antibody using Teclot Kits. Prolonged Ressull's viper venom time is a way to evaluate lupus like anticoagulant antibody.

In this method Ressull's viper venom activate X factor for clot formation. Teclot includes Ressell's viper venom, calcium and phospholipid which are sensitive to lupus like antiphospholipid antibody. We mixed 0.1ml of plasma with control plasma and warmed the mixture up to 37ºC and then we added 0.2 ml of LA Teclot and recorded the clotting time. This test was repeated by the mixing 0.5 ml of plasma of the cases with 0.5 ml of plasma of control group in 37ºC with 0.2 ml LA Teclot. If the prolonged clotting time would be corrected by normal plasma then lupus-like anticoagulant antibody test would become positive.

Results

The results showed that 26% of healthy pregnant women (control group) and 30% of preeclampsia cases were IgM anticardioloipin antibody positive. Twelve percent of control and 4% of case groups were IgG anticardiolipin antibody positive (Table 1). Thirty eight percent of healthy pregnant women and 32% of case group were antiphospholipid antibody positive (Table 1). Although, 6% of control group and 8% of case group had lupus-like anticoagulant antibody but their differences were not statistically significant (Table 1).

Discussion

Our study has indicated that there was not significant difference in the prevalence of antiphospholipid antibody positivity in healthy pregnant women and preeclampsia. The results are supported by similar previous studies.[2]

As is recommended in the previous studies,[6] in stead of antiphospholipid antibody we evaluated anticardiolipin and anticoagulant antibodies directly. Antiphospholipid antibodies are reported to be present in 7-10% of pregnant women, and it is believed that these antibodies may activate the coagulatory pathways and cause preeclampsia.[2,7] Therefore, we compared antiphospholipid antibody titers in normal pregnant women with those of preeclampsia cases, and found no significant differences between them. However we cannot predict which of this antibody positive cases may progress to a thrombotic state (antiphospholipid syndrome).

Genetic and environmental factors may change the antibodies to pathogen forms. It was reported that anticardiolipin and lupus like anticoagulant antibodies accompany with plasma protein cofactors such as β2-glicoprotein-1, prothrombin, annexin V.[7] C-protein and s-protein are said to have an important role in thrombotic states such as eclampsia and even preeclampsia.[2] However the results of our study indicated that there was no need to assess these antibodies in the preeclampsia cases without the history of thrombosis or autoimmune diseases and also anticoagulant therapy is not necessary.

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