

Assessment of Antiphospholipid Antibodies in Women with Recurrent Miscarriage at GMMMC, Sukkur

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ABSTRACT

Objective: To determine and analysis of Antiphospholipid Antibodies in women with Recurrent Miscarriage belongs to District Sukkur.

Study Design: Cross-sectionals study

Place and Duration of Study: This study was conducted in the Ghulam Muhammad Mahar Medical College, Sukkur and women attending local health clinics enrolled in this study after taking their informed consent from May, 2012 to August 2013.

Materials and Methods: In this study 205 patients were taken. Patient's whole blood was collected by disposable syringes through vein puncture technique from cubital vein and maximum of 10 ml blood was taken. An aliquot of this blood (4 ml) was transferred in the EDTA containing tube. Immediately after collection plasma was separated and stored at - 40 °C for the measurement of plasma Anti phospholipid and anticardiolipin antibodies level. 5 ml blood was drawn in plain tube and allowed to clot, and then serum was separated and used for blood cholesterol, HDL, LDL and Plasma lipid concentration.

Results: In the current research of district Sukkur showed the highest frequency in age group of 26 to 35 years (Table 140). In physical parameters, BMI, calories intake and maternal history of RM of patients and control subjects showed significant ($p < 0.05$) difference. In present study the assessment of antiphospholipids antibodies (aPL) 1.95 % which were significantly different ($p < 0.05$) than controls. Results of anticardiolipin antibodies (aCL) showed 2.43 % prevalence in patients with recurrent miscarriage.

Conclusion: The present study indicated that antiphospholipid antibodies and anticardiolipin antibodies were found an indipanded risk for recurrent miscarriage in population of Sukkur.

Key Words: Recurrent Miscarriage, Antiphospholipid Antibodies, Anticardiolipin antibodies.

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INTRODUCTION

Recurrent miscarriage is the spontaneous loss of three or more consecutive pregnancies in the first trimester^{1,2}. It affects 1 to 2 percent of women, in one half of whom there is no identifiable cause. Most of the miscarriage due to chromosome abnormalities, it may be upto 90%. The happening of which is more very much related to basal follicle-stimulating hormone FSH levels³. In contrast to women suffering a sporadic miscarriage, women who recurrently miscarry often lose pregnancies with a normal chromosome content⁴. It has been reported that 54% of pregnancy wounded in the middle of women with recurrent miscarriage are euploid⁵. The etiology of a large proportion of miscarriages, as well as the etiology of recurrent miscarriages, remains unexplained^{6, 7}. Previous studies of such cases have suggested many risk factors, such as: history of prior fetal losses, abortions and previous deliveries, caffeine,

alcohol, tobacco and drug use, uterine anatomic defects, endocrine disorders, deregulation of a component of the immune system. Recurrent miscarriage (RM) can have deep emotional and psychological effects on both partners^{8, 9}.

Antiphospholipid antibodies (APA) consist of a different group of antibodies that target phospholipid-binding plasma proteins¹⁰. More than twenty APA have been identified and consist of a heterogeneous group of antibodies that target aPL binding proteins¹¹. In particular, beta-2-glycoprotein and prothrombin. It has been reported that certain ACA interferes in very early pregnancy, that is, at the stage of fetal implantation by impeding normal reproductive event¹². These miscarriages pathological mechanism causing recurrent abortion, which is commonly diagnosed as infertility. Serum anticardiolipin antibodies were raised in patients with recurrent abortion when comparing with controls¹³. Recent research and clinical experimental results propose that the pathophysiology of pregnancy loss in patients with antiphospholipid syndrome may cases inflammation at the maternal-fetal interface and disruption of normal trophoblast function and survival,

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rather a pro-thrombotic event^{14, 15}. Therefore the present study will be designed to evaluate the risk factors for recurrent miscarriage and its correlation with antiphospholipid antibodies.

MATERIALS AND METHODS

Study design and site: Cross-sectionals study on the analysis the antiphospholipid antibodies in women with recurrent miscarriage of Sukkur.

Enrolment of patients: This study was conducted in the Ghulam Muhammad Mahar Medical College, Sukkur and women attending local health clinics enrolled in this study after taking their informed consent.

Duration of study: The study was conduct over a period of fifteen months from May, 2012 to August 2013.

Data collection: The patients were interviewed by using a structured questionnaire to collect the bio-data and history of patients.

Blood sample: Blood was collected by disposable syringes through vein puncture technique from cubital vein and maximum of 10 ml blood was taken. An aliquot of this blood (4 ml) was transferred in the EDTA containing tube. Immediately after collection plasma was separated and stored at - 40 °C for the measurement of plasma Anti phospholipid and anticardiolipin antibodies level. 3 ml blood was drawn in plain tube and allowed to clot, and then serum was separated and used for blood cholesterol, HDL, LDL. Plasma lipid concentration.

Body mass index (BMI): In addition to excess weight, body shape is a putative phenotypic marker of increased risk of disease. Epidemiology studies have found that central fat distribution is related to adverse psychology states,

RESULTS

Total 205 patients and controls were recruited from district Sukkur. In the current research of district Sukkur showed the highest frequency in age group of 26 to 35 years (Table 140). In physical parameters, BMI, calories intake and maternal history of RM of patients and control subjects showed significant ($p < 0.05$) difference (Table No. 1).

Table No. 1: Comparison of frequency and % of patients and controls with different age groups of Sukkur.

Age (18 – 40 Years)	Patients		Controls	
	Frequency	%	Frequency	%
18 – 20	36 ^b	17.47%	34 ^b	16.50%
21 – 25	43 ^b	20.87%	41 ^b	19.90%
26 – 30	47 ^a	22.81%	50 ^a	24.27%
30 – 35	47 ^a	22.81%	49 ^a	23.78%
36 – 40	33 ^b	16.01%	32 ^b	15.53%

In present study the assessment of antiphospholipids antibodies (aPL) 1.95 % which were significantly

different ($p < 0.05$) than controls. Results of anticardiolipin antibodies (aCL) showed 2.43 % prevalence in patients with recurrent miscarriage (Table No. 2).

The values having the same superscript within the column are not significantly ($p < 0.05$) different according to Duncan's multiple range test.

Table No. 2 Serological results of anti-phospholipid IgG (aPL IgG) and anti-cardiolipin IgG (aCL IgG) in patients and controls of district Sukkur.

Test Perform	Anti-phospholipid IgG (aPL IgG)		Anti-cardiolipin IgG (aCL IgG)	
	Positive ≥ 10 GPL AU/ml	Negative ≤ 10 GPL AU/ml	Positive Cut off = 2.0	Negative Cut off = 2.0
Patients	04 ^a (1.95%) (mean = 16.0 \pm 0.5)	201 ^a (98.0%) (mean = 4.6 \pm 0.1)	05 ^a (2.43%) (mean Cut off = 0.4 \pm 1.0)	200 ^a (97.52%) (mean cut off = 0.5 \pm 0.2)
Control	01 ^b (0.48%) (mean = 13.9 AU/ml)	204 ^a (99.51%) (mean = 5.0 \pm 1.2)	00 ^b (0.0%)	205 ^a (100%) (mean cut off = 0.3 \pm 0.1)

The values are expressed as mean \pm Standard error.

The values having the same superscript within the column are not significantly ($p < 0.05$) different according to Duncan's multiple range test.

Table No. 3 Comparison of physical parameters in patients and control subjects of district Sukkur.

Parameters	Sukkur	
	Patients	Control
Age (Years)	30.0 ^a \pm 1.63	31.5 ^a \pm 1.52
Weight (Kg)	55.0 ^a \pm 2.1	56.0 ^a \pm 2.0
Height (Inches)	132.8 ^a \pm 10.2	138.2 ^a \pm 11.2
BMI	20 ^a \pm 2.0	24 ^a \pm 1.0
Calorie intake (kcal/day)	1202 ^b \pm 16	1316 ^a \pm 14
Maternal history of RM	47.0 ^a %	15.6 ^b %
Hypertension	10.0 ^a %	11.3 %
Smokers	0.00 %	00 %
Vegetarian	0.52 ^a %	0.03 ^a %

The values are expressed as mean \pm Standard error.

Table No. 4: Comparison of lipid profile in patients and control subjects of district Sukkur.

Test	Patients	Control
Total Lipid (mg/dl)	583.5 ^a \pm 16	612.5 ^a \pm 15
Total Cholesterol (mg/dl)	158.0 ^a \pm 12.5	161.0 ^a \pm 11.8
Triglyceride (mg/dl)	118.4 ^a \pm 10	119.0 ^a \pm 14
HDL-Cholesterol (mg/dl)	33.5 ^a \pm 4.0	32.8 ^a \pm 2.8
LDL-Cholesterol (mg/dl)	103.5 ^a \pm 10.5	109.5 ^a \pm 10.0
VLDL-Cholesterol (mg/dl)	38.0 ^a \pm 7.0	39.0 ^a \pm 7.0

The values are expressed as mean \pm Standard error.

The values having the same superscript within the row are not significantly ($p < 0.05$) different according to Duncan's multiple range test

DISCUSSION

The current study was carried out to assess the antiphospholipid antibodies and anticardiolipin antibodies in women with recurrent miscarriage. Various parameters have been assessed including physical and biochemical parameters (Antiphospholipid antibodies, Anticardiolipin antibodies and Lipid profile). The current research showed the positive antiphospholipids antibodies (aPL) 1.95 % which was significantly different ($p < 0.05$) than control group. Results of anticardiolipin antibodies (aCL) in the running study showed 2.4 % in patients with recurrent miscarriage. All the patients which were positive with aPL showed the positive results of aCL as well. There is now abundant evidence in the literature that aPL are particularly associated with a risk of thrombosis, especially recurrent events and pregnancy morbidity¹⁶. Serum anticardiolipin antibodies were raised in patients with recurrent abortion when comparing with control^{16, 17}.

In present study, anthropometric measurements were conducted by using the standard methods. Weight with minimum clothing was recorded to the nearest 0.1 kg, using digital scale^{18, 19}. Results of these nutritional parameters showed that all the patients were under weight and having significantly low BMI. In patients 47.0 % population have the maternal history of RM. In controls 15.6 % women have the maternal history which is significantly different ($p < 0.05$) in patients^{20, 21}. Lipid profile level was about normal in patients and in control groups but HDL-cholesterol level was slightly lower than control. Triacylglycerol level showed significant difference. Socio-economically, majority of Pakistani population belongs to low socio-economical group^{21, 22, 23}. In patients 38.0 % population have the maternal history of RM and 62.0 % population do not have maternal history. In controls 17.3 % women have the maternal history which is significantly high in patients²³. Particularly the people live in remote areas of Pakistan food contains high levels of triglycerides and cholesterol^{24, 25}.

CONCLUSION

The present study indicated that antiphospholipid antibodies and anticardiolipin antibodies were found a impending risk for recurrent miscarriage in population of Sukkur. In current study 1.9 % patients were positive with antiphospholipid antibodies and 2.4% patients were positive with anticardiolipin antibodies. Positive antiphospholipid antibodies and anticardiolipin antibodies may be a cause of recurrent miscarriage.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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