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The Role of Antiphospholipid Antibodies in Pathogenesis of Myocardial Infarction in Young Adults

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Abstract

Background: Myocardial infarction pathogenesis involved atherosclerosis and thrombosis; the most common diseases associated with APL syndrome is recurrent abortions.

Patients and methods: 50 persons with Myocardial Infarction were taken, and Normal 50 persons were studied for the prescience of correlation between APL syndrome and acute MI.

Results: No significant correlation was seen betweenpatients withacute MI and those with APL syndrome (4%) of cases and 8% of controls (P-value:0.55).

Conclusion: No correlation approved between APL syndrome and Acute Mi in young patients.

Keywords: Antiphospholipid Antibodies, Myocardial Infarction; Adults; APL syndrome.

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Introduction

Rarely antiphospholipid syndrome reported as a cause of acute myocardial infarction, mainly associated in clinical practice with fetal loss and recurrent abortions due to thrombosis formation phenomena, vascular thrombosis associated with increased level of serum antiphospholipid antibody measured routinely when there is suspicion in recurrent abortion [1]. Antiphospholipid antibody syndrome affecting multiple systems so considered as multisystemic disorders, only 4% of patients with acute myocardial infarctions is shown to be associated with anti-phospholipid syndrome, also acute MI is rarely seen in young patients[2].

Deep venous thrombosis, pulmonary thromboembolism, recurrent abortions and stroke are mainly associated with patients with antiphospholipid syndromes, so thrombosis is the common feature for antiphospholipid syndrome, this syndrome is characterized by the formation of auto antibodies towards the phospholipid bounded to the endothelial cells in the human being[3].

Anti-phospholipid antibody syndrome considered as a disease affecting many different systems of the body, so it causes different pathologies associated with wide variety of abnormalities [4]. One of the least diseases associated with this syndrome is acute myocardial infarction only (3-4)% of all patients recorded as having acute myocardial infarction reported to be young and have symptoms of antiphospholipid syndrome [5].

Patients and Methods

Case-control study design done in Kirkuk city, Iraq from April 2018 to September 2018, where 100 people involved in the study, 50 of them were patients diagnosed as having acute myocardial infarction by clinical and electrocardiographic features as ST elevation and Non-ST elevation MI. cardiac enzymes also involved in the criteria of diagnosis, another 50 persons were normal volunteers having no MI recruited as a control group. All patients with risk factors such as atherosclerosis, hypertension, DM, valvular Heart disease, Ischemic heart diseases were excluded from the study.

Antiphospholipid antibody test were done for all cases in both patients and control groups both IgM and IgG isotypes which are normally below 15.0 IU/ml. Positive values are more than 15.0 IU/ml. Antiphospholipid syndrome criteria of diagnosis involved positive antiphospholipid antibodies, low platelet count, high partial thromboplastin time (PTT) [3].

Statistical analysis

Fisher's exact test,X2 test evaluate the relation between APL and MI variables, and used for assessment of comparable variables, t test also implicated and P-value <0.05 is represented as significant.

Results

Fifty patients with acute MI compared with fifty normal patients

admitted to Erbil cardiac center and Azadi teaching hospital, here the table shows that the mean age nearly the same between cases and control group with no significant correlation(P-value=0.5) (Table 1).

In both study groups the females are more than male genders with no significant correlation (p-value=0.08),2 patients represented 4% of patients with acute MI showing elevated PTT and low platelets as a criteria for APL syndrome in comparison to 4(8%) and 3(6%) of control groups with no significant difference subsequently (p-values=0.10,0.6). The below table shows that 4% of patients with MI showing positive antiphospholipid antibody titers in comparison to 8% in control groups with no significance (P-value=0.55) (Table 2).

Table 1: Basic characteristic of both cases and control study groups.

	Cases:50	Control:50	P-value
+ve Antiphospholipid AB	2(4%)	4(8%)	0.55
-ve Antiphospholipid AB	48(96%)	46(92%)	0.35

Table 2: Percentage of patients with positive and negative APL AB in cases and control groups.

	Cases:50	Control:50	p-value
Sex (F/M)	40±3.6	41±4.1	0.5
Elevated PTT	28/22	31/19	0.08
Low platelet	2(4%)	4(8%)	0.10
Age (mean±SD)	2(4%)	3(6%)	0.6

Discussion

Myocardial infarction is one of the most common diseases over the world causing high morbidity and mortality [6]. Pathogenesis of the diseases involving many factors,the most important one is atherosclerosis of the vessels and thrombosis [7]. Although antiphospholipid antibody syndrome is a disease-causing frequent thrombosis, but it is rarely seen to be an etiology of the disease [8]. In addition to that MI infarction is mainly disease of elderly more than young patients [9]. MI associated with young patients is less frequently reported [10].

In the current study, findings recorded showed no significant correlation between APL syndrome as a disease and acute MI in those patients with mean age 40 and less. These finding is concordant with all results reported from articles study the same subject all of them stated that there is no direct correlation between APL syndrome and Acute MI [11-15].

Also results in this study shows that there is harmony between age which is young age and MI and APL syndrome which is also came in the same way from other studies which approved that there is no much correlation between young age and MI and APL syndrome [16-19].

Conclusion

No correlation seen between Antiphospholipid Antibody syndrome and myocardial infarction inyoung age group of patients.

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