Original Article

Frequency of Metabolic Syndrome (METS) in Patients with Systemic Lupus Erythematosis (SLE)

Metabolic Syndrome in Systemic Lupus Erythematosis

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ABSTRACT

Objective: To study the frequency of metabolic syndrome in patients with systemic lupus erythematosus.
Study Design: Quasi-Experimental Study.
Place and Duration of Study: This study was conducted at the Rheumatology Department, Shaikh Zayed Hospital Lahore from October 2017 to October 2018.
Materials and Methods: Two hundred and forty patients who fulfilled the study protocol and consented were enrolled for this study. Enrolled patients were grouped into 2 categories. Group-A SLE movement record and Group-B: Controls. Serum samples for sugar, lipid profile including to talcholesterol, high-thickness lipoprotein (HDL), low-thickness lipoprotein (LDL), triglycerides, andInsulin (pg/ml). Categorical data was analyzed using Chi-square Test using (SPSS) v 23. A p-value ≤0.05 was taken as significant.
Results: In Group A, 25 (20.8%) were males and 95 (79.2%) females, while in Group-B 15 (12.5%) were males and 105 (87.5%) females. Mean age of the patients in group-A was 40.2±11.7 years, while 36.6±11.6 years in group-B. While comparing the Metabolic syndrome (MetS) in both groups, MetS was noted in 35 (29.2%) patients in Group-A and 18 (15.0%) in Group-B
Conclusion: Systemic lupus erythematosus with patients have higher prevalence of metabolic syndrome than controls. Syndrome was associated with higher level of inflammation and provide inflammation and increased cardiovascular risk.
Key Words: Metabolic Syndrome, Systemic Lupus Erythematosus

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INTRODUCTION

Systemic lupus erythematosus (SLE) is a multisystem autoimmune syndrome with protean manifestations. Female gender is more likely to be affected than their sex counterparts. Females with SLE have 5 times more risk of coronary artery disease (CAD)[1]as well assub-clinical artererosclerosis too.[2,3]
The etiology of increased prevalence of arteriosclerosis[4] in the said syndromeis yet unknown. Disting uishing proof of systems that are basic to both irritation and cardiovascular sickness are of intrigue and SLE gives an extraordinary model to think about such inquiries.
The syndrome X in considered a complex disorder, the complete etiology of which is a secret.

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It is an independent risk of CAD owing to its essential components i.e. apple obesity, dyslipidemia, insulin resistance and disrupted glucose metabolism. Each of the above mentioned are independent risk factors associated with cardiovascular morbidity and mortality.[5,6,7] In all inclusive community, male with the Syndrome X are 1.9–3 times more inclined to expire due to any reason and 2.9–4.2 times more prone to expire from CHD.[8] Female with the Syndrome X have double expanded hazard of major antagonistic cardiovascular occasions and death.[9]
There is a concrete evidence between cardiovascular hazard factors, syndrome and inflammation.[10] The people at risk of metabolic syndrome do start to have anyone or more of the individual components of the syndrome long time before they are diagnosed with diabetes or CAD, favouring the relation of inflammatory cytokines and CRP with the disorder.[11] Since a lot of international literature highlights the association of SLE with metabolic syndrome, the study was conducted to study the prevalence of metabolic syndrome in our set up.

MATERIALS AND METHODS

This quasi experimental study was conducted at Department of Rheumatology & Immunology, Shaikh Zayed Hospital, Federal Postgraduate Medical Institute,

Lahore. After approval from the Departmental Ethics Committee. Prior to inclusion, informed written consent was taken from each patient. The sample of 240 (120 in each group) was estimated by using 95% confidence level and 80% power of test with an expected percentage of Metabolic Syndrome is 45.2% in patients with SLE and 32.7% in controls. Patients of both gender, age between 20-60 years and diagnosed was SLE. These patients were excluded from the study i.e. history of Myocardial Infarction, History of Angina and Stroke, patients already diagnosed with diabetes mellitus, thyroid disease and pituitary disease. Patients were randomly divided into two groups, i.e. Group-A (SLE activity index) and Group-B (Control activity index). Stature and weight were estimated and the BMI was figured. Midsection estimations were likewise gotten. Circulatory strain was recorded as the mean of two estimations got 5 min separated after members had rested in a prostrate position for 10 min. Blood was gathered for the estimation of glucose, add up to cholesterol, high (HDL), low-thickness lipoprotein (LDL), triglycerides, lipoprotein. Insulin fixations were estimated utilizing ELISA (Lincoplex) and announced as pg/ml. Data were entered in statistical package for social sciences (SPSS) v 23.0. Qualitative data like gender and MetS were determined by using frequency and percentages and quantitative data like age, waist, TG level, HDL cholesterol, blood pressure and fasting blood sugar were determined by using mean and standard deviation. Comparison was performed using Chi-square test. Stratified for age and gender. Post stratification, Chi-square test was used. A p-value ≤0.05 was taken as significant.

RESULTS

In Group-A, 25 (20.8%) were males and 95 (79.2%) females, while in Group-B 15 (12.5%) were males and 105 (87.5%) females (Table 1). In Group-A, 20-35 years age group, there were 45 (37.5%) patients, while in 36-50 years and >50 years age groups, there were 45 (37.5%) and 30 (25.0%) patients respectively (Table 2). In Group-B, in 20-35 years age group, there were 45(37.5%) patients, while in 36-50 years and >50 years age groups, there were 45 (37.5%) and 30 (25.0%) patients respectively. Mean age of the patients in Group-A was 40.2±11.7 years, while 36.6±11.6 years in Group-B. Mean waist circumference of the patients in Group-A was 94.4±13.4cm and 92.4±13.9cm in Group-B with a p-value of p=0.255, which is statistically insignificant. Mean glyceride levels of the patients in Group-A was 108.4±24.6mg/dl and 90.0±15.6mg/dl in Group-B with a p-value of p=0.0001, which is statistically significant. Mean high-density lipoprotein (HDL) of the patients in Group-A was 44.7±5.7mg/dl and 46.8±4.4mg/dl in Group-B with a p-value of p=0.002, which is statistically significant (Table 3). Mean blood pressure of the patients in Group-A was 131.5±7.6mmHg and 125.6±11.2mmHg in Group-B with a pvalue of p=0.0003, which is statistically significant (Table 4). Mean fasting blood sugar (FBS) of the patients in Group-A was 85.1±6.0mg/dl and 85.7±3.4mg/dl in Group-B with a p-value of p=0.296, which is statistically insignificant (Table 5).

While comparing Syndrome X in both groups, Syndrome X was noted in 35 (29.2%) patients in group-I and 18 (15.0%) in group-II with a p-value of p=0.008, which is statistically significant (Table 6). Table 7 shows the stratification of metabolic syndrome in groups with respect to gender.

Table No.1: Comparison of gender distribution in groups

Gender	**Groups**		**Total**
	SLE activity index	Controls activity index	
Male	25	15	40
	20.8%	12.5%	16.7%
Female	95	105	200
	79.2%	87.5%	83.3%
Total	120	120	240
	100.0%	100.0%	100.0%

Table No.2: Comparison of age groups in groups

Age groups (Years)	**Groups**		**Total**
	SLE activity index	Controls activity index	
20-35	45	50	95
	37.5%	41.7%	39.6%
36-50	45	47	92
	37.5%	39.2%	38.3%
>50	30	23	53
	25.0%	19.2%	22.1%
Total	120	120	240
	100.0%	100.0%	100.0%

Table No.3: Comparison of High-Density Lipoprotein (HDL) in groups

Group	Mean±SD	P value
SLE activity index	44.7±5.7	0.002
Controls activity index	46.8±4.4	

Table No.4: Comparison of blood pressure in groups

Group	Mean±SD	P value
SLE activity index	131.5±7.6	0.0003
Controls activity index	125.6±6.8	

Table No.5: Comparison of fasting blood sugar (FBS) in groups

Group	Mean±SD	P value
SLE activity index	85.1±6.0	0.296
Controls activity index	85.7±3.4	

Table No.6: Comparison of Syndrome X in groups

Metabolic Syndrome (MetS)	Groups		Total	P value
	SLE activity index	Controls activity index		
Yes	35	18	53	0.008
	29.2%	15.0%	22.1%	
No	85	102	187	
	70.8%	85.0%	77.9%	

Table No.7: Stratification of metabolic syndrome in groups with respect to gender

Syndrome	SLE activity index	Controls activity index	P value
Male			
Yes	6 (24.0%)	2 (13.3%)	0.414
No	19 (75%)	13 (86.7%)	
Female			
Yes	29 (30.5%)	16 (15.2%)	0.010
No	66 (59.5%)	89 (84.8%)	

DISCUSSION

Syndrome X is more prevalent in patients with SLE irrespective of co existent potential cofounders i.e. age, sex, central obesity and BMI. The overall prevalence of syndrome X in general population is high [12] and the Syndrome is a sole predictor of all cause cardiovascular morbidities and mortalities.[13] One of the significant association between Syndrome X and coronary atherosclerosis is the high serum insulin indicating that Syndrome X is an insulin resistant state.[14] If we restrict ourselves to NCEP criteria[15] to define Syndrome X, its prevalence in a population of ladies 40 years is 20% otherwise its 13% while quoting World Health Organization criteria.[16]

In our study the prevalence ofmetabolic disorder was 29.4% in patients with SLE (NCEP criteria) as compared tocontrols 15.0%. Our study is in concordance with study published by Medeiros et al[17,18] They also highlighted many factors relating to metabolic syndrome in SLE patients like duration of primary disease type and compliance of treatment e.g. corticosteroids or choloroquine.[17] Another study revealed that the normal age of diagnosis of SLE was 41.7±12.5 years and 91.8% were female as compared to males. Metabolic syndrome was 45.2% than control 32.7%).

In another study, it was concluded that MetS was prevalent in patients with SLE 20% than controls13%. The Mets with SLE introduced more elevated amounts of provocative inflammatory markers than SLE without the Mets. E.triglycerides, HDL C3 serum levels were related to the occurrence of metabolic syndrome.[19]In another examination, patients of SLE were enlisted of mean age in years i.e. 34.9±13.6 and sickness span of mean 24.2±18.0 weeks. The prevalence of MetS was 38.2% and 34.8% at year 1 and 35.4% at year 2.

There are some pitfalls in the study, it would have been more inferential if done multicentered and the association of drug taken by the patient if had been taken into account,we would have been able to demark the relation of drugs with the occurrence of metabolic syndrome

CONCLUSION

Patients with SLE have a higher prevalence of Syndrome X. Also this syndrome is associated with high levels of inflammatory markers and insulin which may be a connecting bridge between this entity and all cause cardiovascular mortality.

Author's Contribution:

Concept & Design of Study:	Amjad Ali
Drafting:	Sadaf Andleeb
Data Analysis:	Muhammad Uthman
Revisiting Critically:	Amjad Ali, Sadaf Andleeb
Final Approval of version:	Amjad Ali

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

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