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Research Article

**SERUM INTERLEUKIN 6 LEVEL AND ITS ROLE IN
PREDICTING ANGINA PECTORIS RISK**¹Dr. Amna Tahir, ²Dr. Iqra Liaqat, ³Dr. Rabia Javed¹EMO, Indus Hospital Manawan, Lahore.²WMO, BHU 285 J.B, Gojra.³WMO, BHU 158 GB Khakhan, Gojra, T.T. Singh.**Abstract:**

Objective: To determine the association between serum interleukin 6 levels and angina pectoris. **Methodology:** The cross sectional study was conducted at Sheikh Zayd Hospital, Lahore during February to September 2016. 40 to 60 years old diagnosed cases of angina pectoris, either males or females were added in the study population. The criteria was normal ECG waves at rest and normal cardiac enzymes level. IL-6 levels were measured in patients by collecting 3ml blood sample. More than 5ng/ml was normal level. **Results:** 100 angina patients were enrolled. Male to female ratio was 58 and 42 each, respectively. Mean age group was 54.2±9.3 years. 68 individuals had raised IL-6 levels. No association between gender and IL-6 level was noticed. However the level was higher in individuals with diabetes mellitus and hypertension, affecting 20 and 22 cases in each group. P value was 0.01 and 0.05 respectively, which was statistically significant. **Conclusion:** IL-6 level was raised in patients with angina pectoris, its level was significantly raised in patients with DM and hypertension.

Key Words: Interleukin 6, Angina pectoris, diabetes mellitus, hypertension.

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INTRODUCTION:

Interleukin 6 is an inflammatory biomarker. Its level increases in blood in certain diseases and acts as biomarker in certain diseases. The study aims in determining the role of interleukin 6 as biomarker in the coronary artery disease, particularly angina pectoris.[1, 2] the biomarkers level in blood depends on work routine of patients. Those individuals who work during night or take inadequate rest during daily routine have higher serum interleukin level than those who work during day and take proper rest at night. Hence, risk of CVD in habitual night shift workers is much higher [3].

Predictors of Ischemic heart disease were studied by Subirana I, et al. and results were published in Scientific Reports during March 2018, in which a strong correlation between IL-1, IL-6, IL-10, TNF- α , MCP-1, CRP and IHD risk was found. [5] Mental stress increases level of inflammatory biomarkers in blood, thus indirect association of mental stress and increased risk of myocardial infarction was studied by Hammadah M, et al [6]. Strand E along with co-researchers studied that altered fatty acid metabolism lead to increase incidence of type 2 diabetes mellitus in individuals with stable angina pectoris [7].

The most common cause of death worldwide is ischemic heart disease. Acute coronary syndrome is a group of diseases based on degree of coronary vessels involvement and extent of myocardial damage in response to coronary thromboembolism. The diseases of ACS are stable and unstable angina, NSTEMI, STEMI. Due to high disease prevalence scientists are in continuous search to find more diagnostic markers for the disease which help us in

better understanding of pathophysiology and in early diagnosis, risk stratification and prevention, ultimately reducing morbidity and mortality rate [4].

METHODOLOGY:

The research was performed at cardiac care unit of Sheikh Zayd Hospital, Lahore after taking permission from hospital ethical review board. Study duration was from February to September 2016. 40 to 80 years old diagnosed cases of angina pectoris were enrolled. ECG changes and cardiac enzymes were done in order to rule out myocardial infarction. 3ml of blood was collected from individuals suffering from angina pectoris, IL-6 was performed. Value more than 5ng/dl was considered raised and significant.

SPSS version 20 was used for data analysis. Quantitative data was presented in form of percentages and frequencies while qualitative data was presented in form of mean \pm SD. Significance with confounder was tested by applying chi-square test. P value <0.05 was considered statistically significant.

RESULTS:

Total 100 patients were selected among whom 52 were males and 48 were females, making 52% and 48% of total. 54.3 \pm 9.6 years [table: 1] was the mean age group of patients. 68% of study population had higher level of interleukin 6 in their blood. No association between level of IL-6 and gender was found, p value 0.14. However, the association between diabetes mellitus and hypertension was significant. 20 diabetic individuals while 22 hypertensives had raised IL-6 levels in blood, making 76.9% and 73.3% of total, respectively [table: 2].

Table 1: Demography

Age	54.2 \pm 9.3	40 to 80 years
Symptoms duration	15.0 \pm 4.1	1 to 25 minutes
IL-6 level	21.2 \pm 5.2	1 to 30

Table 2: IL-6 levels in comparison to confounders.

		Raised IL-6	IL-6 not raised	P value
Diabetes mellitus	Present	20 (76.9%)	6 (23.0%)	0.01
	Absent	48 (64.8%)	26 (35.1%)	
Hypertension	Present	22 (73.3%)	8 (26.6%)	0.05
	Absent	46 (65.7%)	24 (34.2%)	
Gender	Male	38 (65.5%)	20 (34.4%)	0.14
	Female	30 (71.4%)	12 (28.5%)	

DISCUSSION:

A broader range of research data is available on the understudy topic. By keeping in view the disease burden across the globe, scientist have been looking for more and accurate diagnostic markers which help in early diagnosis, prevention and prompt treatment. [12] Not only IL-6 but various other biomarkers have also been tested by scientists and doctors in order to draw an effective and better association between ACS and inflammatory biomarkers [8,9].

The most common cause of death worldwide is ischemic heart disease. Acute coronary syndrome is a group of diseases based on degree of coronary vessels involvement and extent of myocardial damage in response to coronary thromboembolism. The diseases of ACS are stable and unstable angina, NSTEMI, STEMI. Due to high disease prevalence scientists are in continuous search to find more diagnostic markers for the disease which help us in better understanding of pathophysiology and in early diagnosis, risk stratification and prevention, ultimately reducing morbidity and mortality rate [4,11].

Mayr HL, et al. has studied the measures to reduce the IL-6 level in blood, in patients with ACS. Patients were prescribed the dietary modification and were followed up for 6 months, results were quite fruitful in reducing IL-6 levels and ultimately disease risk [10].

This study was conducted on Pakistani population in order to study the effect on local population, as less research data was available in Pakistan in comparison to disease burden.

CONCLUSION:

IL-6 level was raised in patients with angina pectoris, its level was significantly raised in patients with DM and hypertension.

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