

Research Article**Interleukin-6 Levels in Angina Pectoris****¹Muhammad Tayyab, ²Atta Ul Haq Shah,****and ³Muhammad Adnan Izhar Rana**¹Medical Officer BHU 545 G.B Faisalabad,
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Dradnanizhar@gmail.com**ABSTRACT****Objective;** To determine the frequency of raised Interleukin-6 levels in angina pectoris.**Methodology;** This was a cross sectional study. It was conducted at Chest pain unit (CPU) of Sheikh Zayed hospital (SZH), Lahore between the periods of February 2016 to September 2016. In this study the cases of both gender with age range of 40-80 years were included. acute MI was ruled out by ECG changes and raised cardiac enzymes. The cases with no abnormal ECG and normal levels of cardiac enzymes underwent 3 ml of blood aspiration which was sent for analysis of IL-6 level. The value > 5 ng/ml was considered as raised IL-6 level.**Results;** In the present study there were total 100 cases of angina pectoris, out of which 58 (58%) were males and 42 (42%) females with mean age of 54.21±9.31 years (table 01). Raised IL-6 levels were seen in 68 (68%) of the cases. There was no difference in terms of gender for its significance (P=0.14). raised IL-6 were significantly high both for DM as well as HTN affecting 20 (76.92%) and 22 (73.33%) cases in their respective groups with p values of 0.01 and 0.05.**Conclusion;** Interleukin-6 levels are raised in a high number of cases presenting with angina pectoris and this is significantly high in cases with DM and HTN.**Keywords;** Angina Pectoris, DM, HTN, IL-6**INTRODUCTION:**

Ischemic heart disease (IHD) is fearsome and fatal entity. It comprises myocardial infarction (MI) and Angina pectoris (AP). AP can present in a complex of symptoms and chest pain and tightness is one of the salient ones. There number is on the rise globally especially in Asia even by the increased usage of anti-hypertensive and lipid powering drugs.¹ Angina pectoris is characterized by recurrent spells of chest tightness, pain or discomfort and is due to temporarily myocardial ischemia.²⁻³ The basic underlying pathophysiology is the development of atherosclerosis in the coronary arteries. This rough surfaces allows the superadded deposition of plaques, activation of platelets and further activation of the

inflammatory cascade. In the recent times, aggressive workup in being done focusing an enhanced inflammatory response in such cases.⁴ The other risk factors which are common for the development of AP and also increase the inflammatory tendency are male gender, higher age, smoking, DM, HTN and dyslipidemias. Recently, various inflammatory and haemostatic factors have been identified which may cause endothelial dysfunction. Fibrinogen, plasminogen activator inhibitor-1, von Willebrand factor, factor VII, C-reactive protein, pro-inflammatory cytokines and interleukins are among these factors.⁵⁻⁶ IL-6, an intercellular mediator, belongs to hematopoietin family of cytokines. It is

produced by a variety of cells in the body including T and B-lymphocytes, monocytes/macrophages, fibroblasts, endothelial cells and adipose tissue.⁶ IL-6 then stimulates the liver to produce acute-phase reactants and coagulation factors, leading to a prothrombotic state. IL-6 also stimulates macrophages to produce tissue factor and proteolytic enzymes, adhesion molecules and TNF. IL-6 causes platelet aggregation and vascular smooth muscle cell proliferation.⁷

OBJECTIVES

To determine the frequency of raised Interleukin-6 levels in angina pectoris.

MATERIAL AND METHODS;

This was a cross sectional study. It was conducted at Chest pain unit (CPU) of Sheikh Zayed hospital (SZH), Lahore between the periods of February 2016 to September 2016. In this study the cases of both gender with age range of 40-80 years were included. acute MI was ruled out by ECG changes and raised cardiac enzymes. The cases with no abnormal ECG and normal levels of cardiac enzymes underwent 3 ml of blood aspiration which was sent for analysis of IL-6 level. The value > 5 ng/ml was considered as raised IL-6 level.

STATISTICAL ANALYSIS;

The data was entered and analyzed by using SPSS version 21.0. The qualitative data was presented as frequencies and percentage while qualitative as mean±SD, Chi square test was applied to look for significance with confounder The values <0.05 was considered as significant.

RESULTS;

In the present study there were total 100 cases of angina pectoris, out of which 58 (58%) were males and 42 (42%) females with mean age of 54.21±9.31 years (table 01). Raised IL-6 levels were seen in 68 (68%) of the cases. There was no difference in terms of gender for its significance (P=0.14). Raised IL-6 were significantly high both

for DM as well as HTN affecting 20 (76.92%) and 22 (73.33%) cases in their respective groups with p values of 0.01 and 0.05 respectively as shown in table 02.

Table No. 01. Study demographics

	Mean	Range
Age	54.21±9.31	40-80 years
Duration of symptoms	15.05±4.14	1-25 minutes
IL-6 level	21.23±5.24	1-30

Table No. 02. Raised IL-6 levels with regard to confounders

	Variables	Raised IL-6		
		Yes	No	
Gender	Male	38 (65.51%)	20 (34.49%)	p= 0.14
	Female	30 (71.42%)	12 (28.58%)	
DM	Yes	20 (76.92%)	06 (23.08%)	p= 0.01
	No	48 (64.86%)	26 (35.14%)	
HTN	Yes	22 (73.33%)	8 (26.67%)	p= 0.05
	No	46 (65.71%)	24 (34.29%)	

DISCUSSION;

Ischemic heart disease is one of the leading causes of death especially in the emergency settings. Angina pectoris is the most common presentation; guiding a clue for an underlying severe disease, which might be investigated and managed. Angiography is an invasive tool and there is no other modality to definitely label it; that's why there is always a definitive need for a non invasive test with a good accuracy to diagnose it. IL-6 is an inflammatory marker and recently being extensively investigated in cases of Angina Pectoris.

Raised IL-6 levels were seen in 68 (68%) of the cases in the present study. Majority of the studies did not use any cut off values to label it as raised or not; rather they compared different modalities like angina pectoris, acute myocardia infarction to see it association with the level of rise in IL-6. According to studies done by Lee et al and Yamashita et a, it has shown significant association with all the different types of ischemic

heart disease.⁸⁻⁹ Furthermore, it also revealed that the higher the levels of IL-6 and higher was the underlying coronary artery atherosclerosis found on angiography.¹⁰

Raised IL-6 were significantly high both for DM as well as HTN affecting 20 (76.92%) and 22 (73.33%) cases in their respective groups with p values of 0.01 and 0.05 respectively. This finding was strengthened by another study, where it was seen that IL-6 plays a key role in revealing underlying plaque vulnerability and its tendency to rupture and lead to thrombo embolization. Elevated IL-6 levels were proved as a strong and independent marker of increased mortality in acute coronary events.¹¹

In cases of DM, HTN there is increased tendency of plaque formation and rupture due to dysfunction in the lipid metabolism as well as underlying mechanical injuries. That's why these are more prone for its raised levels. These findings were justified by the studies done by Lai S et al where they also found this association as significant with a p value of 0.02.¹² Orak et al and Mehemuti et al also has significant association with both stable and unstable angina pectoris with raised IL-6 levels.¹³⁻¹⁴ In contrast to all above studies in a study conducted by Kosmala W et al, no such significant association was seen with p=0.23.¹⁵

CONCLUSION;

Interleukin-6 levels are raised in a high number of cases presenting with angina pectoris and this is significantly high in cases with DM and HTN.

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