



An overview on the comparison of plasma fibrinogen level between the Non-diabetic and the diabetic subjects in Punjab, India

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ABSTRACT

The various studies over diabetes have shown the impact of the different levels of fibrinogen very significant. The fibrinogen levels leads to coronary heart disease and brings morbidity.

The study was carry out by taking 100 subjects affliction from diabetes, 100 subjects, diabetic with glycemic control subjects and 100 non diabetic subjects. In present study, evaluate the blood sugar and glycosylated (HbA1C) as a marker of diabetic subjects and for comparing the level of plasma fibrinogen in non- diabetic and diabetic subjects. Also comparison, between the plasma fibrinogen in diabetic having glycemic control with non-diabetic subject and between diabetic and fibrinogen related complication in both groups has been done. Correlation between the level of HbA1C with plasma fibrinogen and other related parameters has been performed.

KEYWORDS :

INTRODUCTION:-

Diabetes mellitus refers to a mixture of metabolic disarray in common, that encompass the phenotype of hyperglycemia. The diabetes mellitus has widened its prevalence dramatically around the globe in the past couple of decades and it is assumed that the number of diabetic persons will be on speeding pathway for rapid elevation in the years to come. Although both types of diabetes (type 1 and type 2) in the competition to take a lead in their prevalence all over the world. Having observed the increasing common symptoms i.e. obesity, reducing activity levels, modern life style etc, it is expected that the prevalence of type 2 diabetes mellitus will rise fast and take a lead is in the future. (Alvin CP et al. 2001).

MATERIAL AND METHODS:-

The aim is to detect the plasma fibrinogen levels in type 2 diabetes mellitus patients and to compare and correlate the values of plasma fibrinogen levels to glycemic control in these patients. The resource of data compilation was from N, I.T Jalandhar Dispensary and Civil Hospital Jalandhar. The controls were 100 non-diabetic subjects, 100 diabetic subjects and 100 diabetic with glycemic control subjects. For examine the plasma fibrinogen use the 01 part of the 3.8% trisodium citrate and 09 part of the fresh venous blood in siliconized glass or plastic tube. Plasma or serum used for blood sugar and for HbA1C used the fresh whole blood with EDTA anticoagulant.

RESULTS:-

The present study fibrinogen, blood sugar and HbA1C levels were estimated in 100 non-diabetic subjects, 100 diabetic subjects and diabetic with glycemic control subjects. The patients were separated into two groups 35-45 and 46-55 for investigative purpose. The mean age of non diabetic subjects in the present series was 44.4 + 5.77, diabetic subject was 44.38 + 6.18, and diabetic with glycemic control was 43.8 + 6.29 respectively.

Sr. No.	Group	Sex	No.	Mean Age in Year
1	Non-diabetic Subjects	Female	50	44.4 + 5.77
		Male	50	
2	Diabetic Subjects	Female	50	44.38 + 6.18
		Male	50	
3	Diabetic with Glycemic Controls	Female	50	43.8 + 6.29
		Male	50	

Between the 100 patients study 50% were females and 50% were males. The mean plasma fibrinogen in diabetic cases was 584.93 ± 116.67.

The mean plasma fibrinogen in non-diabetic patients was 318.27 ±

52.13. The mean plasma fibrinogen in diabetic with glycemic control subjects was 330.45 ± 59.80. in diabetic patients have a higher value of fibrinogen when compare to non-diabetic subjects and diabetic with glycemic control subjects and it was statically highly significant also the P value is <0.0001.

Plasma fibrinogen		
	Mean ± SD	P value
Non -diabetic subjects (N = 100)	318.27 ± 52.13	<.0001
Diabetic subjects (N = 100)	584.93 ± 116.67	
Diabetic with glycemic control subjects (N = 100)	330.45 ± 59.80	

Fasting Blood Sugar		
	Mean ± SD	P value
Non -diabetic subjects (N = 100)	87.16 ± 7.80	<.0001
Diabetic subjects (N = 100)	229.38 ± 72.37	
Diabetic with glycemic control subjects (N = 100)	90.85 ± 9.61	

HbA1C		
	Mean ± SD	P value
Non -diabetic subjects (N = 100)	4.92±0.44	<.0001
Diabetic subjects (N = 100)	9.20 ± 9.48	
Diabetic with glycemic control subjects (N = 100)	4.99 ± 0.50	

In this it was found in study population that in case male has been mean fibrinogen is 577.34 ± 104.57 diabetic subjects and female had mean fibrinogen is 592.52 ± 104.05 which was higher but not statically significant. In non-diabetic male had mean fibrinogen is 313.14 ± 41.13 and female has mean fibrinogen is 323.40 ± 42.1, which was higher but not statically significant. In diabetic with glycemic controls subjects male had mean fibrinogen is 325.60± 54.34 and female has mean fibrinogen is 335.3 ± 65.0, which was higher but not statically significant. The HbA1C Value in diabetic cases was 9.20 ± 9.48, in non-diabetic cases was 4.92±0.44 and in diabetic with glycemic control cases was 4.99 ± 0.50 respectively. In diabetic patients have a higher value of HbA1C when compare to non-diabetic subjects and diabetic with glycemic control subjects and it was statically highly significant and the P value is <0.0001. The Fasting Blood Sugar Value in diabetic cases was 229.38 ± 72.37, in non-diabetic cases was 87.16 ± 7.80 and in diabetic with glycemic

control cases was 90.85 ± 9.61 respectively. In diabetic patients have a higher value of Fasting Blood Sugar when compare to non-diabetic subjects and diabetic with glycemic control subjects and it was statically highly significant and the P value is <0.0001 .

DISCUSSION:-

The recent study showed that the result of the fibrinogen, HbA1C and FBS are elevated in diabetic subjects in comparison to non-diabetic and diabetic with glycemic control subjects. The concerned outcomes are in good accord with the result by Anbuselvan et al., 2015, Gupta et al., 2016, Narasimha and Jaganathan 2010, Bruno et al., 1996 and Khan et al., 2005, who also found plasma fibrinogen FBS and HbA1C are elevated in diabetic when compare to non diabetic subjects.

The level of fibrinogen and unbalance fibrinolysis is higher in the diabetic subjects than non diabetic subjects. The diabetic generally show the tendency of the elevated levels of fibrinogen.

Elevation the level of fibrinogen and unbalance fibrinolysis is common in the diabetic patients than that of non-diabetic patients, although discordant results have been reported. Enhance the plasma fibrinogen observation were those with other keen period reactants in the emerging analysis of sub-clinical inflammation as a characteristic of possibly a danger factor for type-2 diabetes mellitus, Rossen M Missov et al., 1996.

Diabetic patient had upper cardiovascular morbidity than non diabetic subjects. A study by Ernst and Ludwig, 1993 revealed that haemostatic factor particularly hyperfibrinogenemia be implicated while a source of atherosclerosis and its symptoms. Researchers have showed that the level of fibrinogen was elevated in diabetics than non-diabetic subjects.

Increased cardiovascular morbidity and mortality in diabetics underscores and need to identify potential reversible cardiovascular risk factors in this group of patients. For many years, haemostatic factors especially fibrinogen, has been implicated as a cause of atherosclerosis and its complications i.e. MI, angina etc. In the recent research diabetics has elevated fibrinogen level controls suggesting augmented cardiovascular peril. The different probable mechanism for hyperfibrinogenemia in diabetics can be that a procoagulant state frequently exists in populace of diabetes (Bemdbe, 2012).

Patients with diabetes have increase risk for the development of coronary artery disease. Fibrinogen is establishing the elevated level in diabetes patients than those without diabetes patients. Fibrinogen is found in higher level in diabetic patients with coronary artery disease than those patients who have only diabetes or only coronary artery disease. Fibrinogen is significantly associated with HbA1C in these patients (Kafle and Shrestha, 2010)

CONCLUSION:-

The level of the fibrinogen, HbA1C & Fasting Blood Sugar are found to significant in diabetic compare to non diabetic subjects and Diabetic with Glycemic Control. Our surveillance supports the suggestion that impair fibrinolysis and inflammation can play a pathogenesis role in diabetes mellitus also they are related micro and macrovascular complications.

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