

CORRELATION OF LIPID PROFILE PARAMETERS WITH HsCRP IN PREDIABETIC AND DIABETIC PATIENTS WITH DYSLIPIDEMIA

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ABSTRACT: The present study is done to find out the correlation between lipid profile parameters with Hs CRP (High sensitive C- Reactive protein) in dyslipidemia patients of prediabetes and diabetic state. This observational study is done on 50 patients Prediabetic and diabetic of age >18 years who presented to department of Medicine, VMMC, Karaikal. Patients with infection, stroke, myocardial infarction, major surgery, malabsorption, CKD, cancer, severe illness, liver dysfunction, pregnancy, edema, on OCPs or NSAIDS were excluded from the study. In our study we have observed a significant relation between HsCRP and triglycerides, fbs, ppbs, HbA1c, diabetic, family h/o diabetes and urine sugars. They may assist in screening of dyslipidemia patients in prediabetes and diabetic states to identify increased risk of atherosclerosis as well as bad cardiovascular events at early stage.

INTRODUCTION:

Diabetes is a complex metabolic disorder which alters the blood glucose levels in the body due to insulin resistance or decreased insulin secretion. Elevated blood sugar levels for prolonged duration is associated with end organ failure. There is a direct relationship between diabetes mellitus and cardiovascular diseases. This is because of the fact that that uncontrolled diabetes is due to insulin resistance which triggers inflammation and decreased insulin may result in accumulation of fat in tissues resulting in obesity and altered lipid profile. The mechanism of inflammation plays a key role in initiation and progression of atherosclerosis, i.e., from initial recruitment of circulating leukocytes into arterial wall till the plaque rupture. C-reactive protein is a marker of chronic inflammation. It is found to be directly associated in the pathogenesis of atherosclerosis which is a major risk factor for cardiovascular events. So the present study is done to observe the role of HsCRP in identifying the risk of cardiovascular events in prediabetes and diabetic patients.

AIM AND OBJECTIVES:

To find out the correlation between lipid profile parameters with HsCRP (High sensitive C- Reactive protein) in dyslipidemia patients of prediabetes and diabetic state.

MATERIALS AND METHODS: This observational study is done on 50 patients diabetic and prediabetic of age >18 years who presented to department of Medicine, VMMC, Karaikal. Patients with infection, stroke, myocardial infarction, major surgery, malabsorption, CKD, cancer, severe illness, liver dysfunction, pregnancy, edema, on OCP's or NSAID's were excluded from the study. All the patients who are diabetic and in prediabetes state, lipid profile and HSCRp levels are estimated.

RESULTS:

TABLE 1: MEAN VALUES OF VARIOUS PARAMETERS OF STUDY POPULATION

VARIABLE	VALIDITY	MEAN
Age	50	48.18
Random Blood Sugar	50	143.22
Haemoglobin	50	12.322
WBC count	50	6928.04
Platelet count	50	
Serum Creatinine	50	.860
Blood Urea	50	32.14
ASCVDscore	50	5.748
FBS	50	147.30
PPBS	50	208.26
HbA1C	50	7.170
hsCRP	50	2.2138

CORRELATION BETWEEN HsCRP LEVELS WITH AGE,HAEMOGLOBIN LEVELS AND WBC COUNT

		hsCRP	Age	Haemoglobin	WBC count
hsCRP	Pearson Correlation	1	.026	-.177	-.077
	Sig. (2-tailed)		.858	.218	.597
	N	50	50	50	50
Age	Pearson Correlation	.026	1	-.178	-.167
	Sig. (2-tailed)	.858		.217	.246
	N	50	50	50	50
Haemoglobin	Pearson Correlation	-.177	-.178	1	.078
	Sig. (2-tailed)	.218	.217		.589
	N	50	50	50	50
WBC count	Pearson Correlation	-.077	-.167	.078	1
	Sig. (2-tailed)	.597	.246	.589	
	N	50	50	50	50

TABLE 2: CORRELATION BETWEEN HsCRP LEVELS WITH PLATELET COUNT, TRIGLYCERIDES AND HDL CHOLESTEROL LEVELS

		hsCRP	Platelet count	Triglycerides	HDL
hsCRP	Pearson Correlation	1	-.219	-.278	-.114
	Sig. (2-tailed)		.127	.050	.432
	N	50	50	50	50
Platelet count	Pearson Correlation	-.219	1	.186	-.233
	Sig. (2-tailed)	.127		.196	.103
	N	50	50	50	50
Triglycerides	Pearson Correlation	-.278	.186	1	.076
	Sig. (2-tailed)	.050	.196		.600
	N	50	50	50	50

HDL	Pearson Correlation	-.114	-.233	.076	1
	Sig. (2-tailed)	.432	.103	.600	
	N	50	50	50	50

TABLE 3: CORRELATION BETWEEN HsCRP LEVELS AND LDL CHOLESTEROL, FBS, PPBS LEVELS

		hsCRP	LDL	FBS	PPBS
hsCRP	Pearson Correlation	1	.094	-.316*	-.400**
	Sig. (2-tailed)		.516	.025	.004
	N	50	50	50	50
LDL	Pearson Correlation	.094	1	-.114	.063
	Sig. (2-tailed)	.516		.430	.664
	N	50	50	50	50
FBS	Pearson Correlation	-.316*	-.114	1	.570**
	Sig. (2-tailed)	.025	.430		<.001
	N	50	50	50	50
PPBS	Pearson Correlation	-.400**	.063	.570**	1
	Sig. (2-tailed)	.004	.664	<.001	
	N	50	50	50	50

TABLE 4: CORRELATION BETWEEN HsCRP LEVELS, TOTAL CHOLESTEROL AND VLDL LEVELS

		hsCRP	Urealog	Totalchlog	VLDLlog
hsCRP	Pearson Correlation	1	.219	-.267	-.172
	Sig. (2-tailed)		.127	.061	.232
	N	50	50	50	50
Urealog	Pearson Correlation	.219	1	.173	.052
	Sig. (2-tailed)	.127		.230	.717
	N	50	50	50	50
Totalchlog	Pearson Correlation	-.267	.173	1	-.019
	Sig. (2-tailed)	.061	.230		.894
	N	50	50	50	50
VLDLlog	Pearson Correlation	-.172	.052	-.019	1
	Sig. (2-tailed)	.232	.717	.894	
	N	50	50	50	50

TABLE 5: CORRELATION BETWEEN HsCRP LEVELS, FBS AND HBA1C LEVELS

		hsCRP	FBSlog	HbA1Clog
hsCRP	Pearson Correlation	1	-.322*	-.558**
	Sig. (2-tailed)		.022	<.001
	N	50	50	50
FBSlog	Pearson Correlation	-.322*	1	.478**

	Sig. (2-tailed)	.022		<.001
	N	50	50	50
HbA1Clog	Pearson Correlation	-.558**	.478**	1
	Sig. (2-tailed)	<.001	<.001	
	N	50	50	50

*. Correlation is significant at the 0.05 level (2-tailed).

DISCUSSION:

In our study the mean age of study population was observed to be 48.18 years. The mean RBS levels were observed we have observed to be 143.22 mg/dl, the mean fasting blood sugar levels were 147.30 mg/dl, mean post prandial blood sugar levels were 208.26mg/dl, mean HbA1C levels were 7.170. The average haemoglobin levels were observed to be 12.322 mg/dl. The mean HsCRP levels were 2.2138mg/dl with a standard deviation of 1.3889mg/dl. On observation of correlation between age and HsCRP levels by Pearson's (2-tailed) correlation it is 0.858 which indicates that age has no correlation with HsCRP levels. Pearson's correlation between HsCRP levels and haemoglobin is observed to be -.177 which indicates that haemoglobin levels doesn't influence HsCRP levels. Pearson's correlation between WBC count and HsCRP is -.77 which indicates that there is no relation between WBC count and HsCRP levels. Pearson's correlation between platelet count and HsCRP levels is observed to be -.0219 which indicates that there is no correlation between HsCRP levels and platelet count. In our study we have observed a significant relation between HsCRP and triglycerides, fbs, ppbs, HbA1c, diabetic, family h/o diabetes and urine sugars. Thus, in our study we have observed that was a clear association between HsCRP and altered lipid levels and blood sugar levels. Higher the value of CRP correlates with altered lipid profile and this correlates with increased risk of cardiovascular disease's has been proved and the strong predictor for risk of future cardiovascular disease. HsCRP and lipid profile are strongly correlated with Pearson scoring <0.01. The altered blood sugar levels are due to lowered insulin levels, insulin resistance increases the chance of inflammation, as inflammation is chronic HsCRP levels were found to be elevated in diabetic patients which are in significant association with serum total cholesterol levels and LDL cholesterol. Dyslipidemia is a traditional landmark risk for atherosclerosis. Elevated TG, total cholesterol, raised VLDL levels and lowered HDL cholesterol are implicated as risk factors for cardiovascular disease already in various studies. This is in correlation with our studies. The burden of cardiovascular disease as major cause of death and morbidity is on rise all over the world especially it is on high trend in patients with dyslipidemia and diabetes mellitus. Because of changes in lifestyle patterns the prevalence of diabetes is also on trend, therefore reduction of CVD risk in this population is of great public health importance. So screening for cardiovascular abnormalities should always be done in high risk population. HsCRP levels which is a marker of inflammation has significant correlation with blood sugar levels (rbs, fbs, ppbs) and lipid profile (LDL cholesterol, serum triglycerides, total cholesterol) can be evaluated in all diabetic patients along with lipid profile routinely to access the risk of cardiovascular disease.

CONCLUSION:

In our study we have observed a significant relation between HsCRP and triglycerides, fbs, ppbs, HbA1c, diabetic, family h/o diabetes and urine sugars. They may assist in screening of dyslipidemia

patients in prediabetes and diabetic states to identify increased risk of atherosclerosis as well as bad cardiovascular events at early stage, hence there by preventing the risk of occurrence to some extent. Though we routinely don't perform HsCRP levels in all the diabetic patients, we should encourage lipid profile and HsCRP level estimation in all diabetic patients for assessment of cardiovascular complications risk and accordingly we can prevent them.

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