

Study of serum lipid profile in type-2 diabetic patients of north Karnataka

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Abstract

Background: Lipid profile in type – DM will be great challenge to medical fraternity globally. Because in type-II DM there will be impairment of viscosity of blood flow moreover elevation of lipids will create more vascular complications like retinopathy, Nephropathy IHD, MI etc. **Method:** 100 known DM patients (61 Males, 39 females) aged between 35 to 70 years were studied. HbA_{1c} and lipid profile of every patients were studied. **Results:** 75% Diabetic retinopathy (23 Males, 28 Female) 40% Nephropathy (23 Males, 17 Females). The Distribution of HbA_{1c} in both sexes was <50 in 1% 5.1-7.0 in 29% 7.1-9.0 in 63%, 9.1 in 7%, was noted. The mean 63%, 9.1 in 7% was noted. The Mean value of lipid profile was TC – 196.9±48.1 LDL 122.7 ± 49.3, TG – 160.9±56.2 HDL 39.6±10.5 VLDL 32.2±11.2 The correlative coefficient values of lipid profile with retinopathy and Nephropathy were highly significant (p<0.01) moreover comparison of mean values of lipid profile with Retinopathy Nephropathy were also highly significant (p<0.01). **Conclusion:** This study of serum lipid in type-2 DM will be quite useful to endocrinologist, physician, ophthalmologist, cardiologist to treat such patients efficiently because out 10 people 3 are sufferings with DM in India and abroad.

Key Words: lipid profile, HbA_{1c}, Retinopathy, Nephropathy, Dyslipidemia, North Karnataka.

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INTRODUCTION

Diabetic Mellitus (DM type II) is a group of metabolic disease characterized by Hyperglycaemia resulting from defects in Insulin secretion, insulin action or both. It is associated with long term damage dysfunction and failure of various organs especially kidneys, eyes heart, blood vessels.¹ Dyslipidemia is an important component observed in type-2 DM, having the parameters of (TG, HDL, LDL, VLDL).² dyslipidemia may cause or exacerbate Diabetic Retinopathy and Nephropathy due to damage to the endothelia cells and increased atherosclerosis.⁽³⁾ Increased lipid profile leads to morbidity

and mortality in type-II DM patents in both sexes risk factors for cardio vascular diseases because DM affects both macro and macro vascular system ⁽⁴⁾ especially in adults.

MATERIAL AND METHOD

100 (61 males and 39 Females) patients visiting Medicine department of KBN Medical College and Hospital Kalburgi having D.M-2 were studied.

Inclusive Criteria: The known or who had history of D.M-2 aged between 35 to 70 years were selected for study.

Exclusive Criteria: The patients with liver disorders BMI > 30 kg/m². The patients on the medication of Lipid lowering agents (statins, fibrates etc). The patients below 20 years of age and HIV patents were excluded from the study.

Method: 4ml venous blood was collected from every patients in lavender top (K₂EDTA) tube 3ml Lavender to (K₂EDTA) tube specimen required 2.5ml minimum 1 ml for HbA_{1c} test procedure HbA_{1c} involves a sample blood test for glycated haemoglobin. HPLC (High performance liquid chromatography) was studied Lipid profile was also

carried in the all DM-2 patients. Duration of study was two years.

Statistical Analysis: Various parameters of DM2 like Retinopathy NephropathyHbD1c lipid profile were classified with percentage in both sexes. The statistical analysis was done at SPSS 2007 software. The ratio of male and female was 2:1.

OBSERVATION AND RESULTS

Table-1: In the study of clinic Manifestation 75 Diabetic Retinopathy were observed among them 47 male and 28 female. 40 patients were Nephropathic among them 23 males and 17 females.

Table-2: Distribution of HbA1c was in DM patients was HBA1c <50 was 1 (1%), 5.1 to 7.0 were 29 (29%) 7.1 to 9.0 were 63 (63%) 9.1 + were 7 (7%) (Total 100).

Table-3: Mean values of lipid profile in 196.9±48.1 TC, 122.7±49.3 LDL, 160.9±56.2 TG, 39.6±10.5 HDL, 32.2±11.2VLDL.

Table-4: Correlative coefficient between Retinopathy, Nephropathy with lipid profile TC in Retinopathy was 0.091, Nephropathy 0.237, LDL. In retinopathy was 0.056, Nephropathy 0.137, TG – In Retinopathy 0.116, Nephropathy 0.38 HDL in Retinopathy 0.000, Nephropathy 0.081, VLDL in Retinopathy 0.123, Nephropathy 0.0571.

Table-5: Comparison of Mean values between Retinopathy, Nephropathy with lipid profile mean value of lipid profile with Retinopathy was TC 196.9±48.6 P<0.01 LDC 122.7±49.1 (p<0.01), TG – 160.9±56.2, HDL 39.6±10.5(p<0.01), VLDL 32.2±11.3 (p<0.01).

Table 1: Clinical Manifestation in DM-2 of both sexes

Sl No	Clinical Manifestation	Male with %	Female with %	Total %
1	Diabetic Retinopathy	47	28	75
2	Nephropathy	23	17	40

Table 2: Distribution of HBA1c in DM-2 patients both sexes

HBA1c	Frequency	Percentage
<5.0	1	1.0
5.1-7.0	29	29
7.1-9.0	63	63
9.1+	7	7
Total	100	100

Table 3: Mean values of lipid profile parameter in DM2 patients

Lipid profile	Mean (±SD)
TC	196.9 ± 48.1
LDL	122.7 ± 49.3
TG	160.9 ± 56.2
HDL	39.6 ± 10.5
VLDL	32.2 ± 11.2

Table 4: Correlation effect between Retinopathy, Nephropathy with lipid profile

Lipid profile	Retinopathy	Nephropathy
TC	0.091**	0.237**
LDL	0.056**	0.137**
TG	0.116**	0.38*
HDL	0.000**	0.081**
VLDL	0.123**	0.571**

**p<0.01 correlation significant at P<0.05

Table 5: Comparison of mean values between Retinopathy, Nephropathy with lipid profile

Lipid profile with Retinopathy	Mean (±SD)	P Value	Lipid profile with Nephropathy	P Value
TC	196.9±48.1	P<0.01	196.9±48.1	P<0.01
LDL	122.7±49.1	P<0.01	122.7±49.3	P<0.01
TG	160.9±56.2	P<0.01	160.9±56.2	P<0.01
HDL	39.6±10.5	P<0.01	39.6±10.5	P<0.01
VLDL	32.2±11.3	P<0.01	32.2±11.2	P<0.01

After application of ANOVA with post Hoc test. All value were significant with lipid profile.

DISCUSSION

In the present study of lipid profile in type-2 in North Karnataka patients out of 100 47 Male and 28 Female total 75 Diabetic Retinopathy were observed and 40 Nephropathic patients among them 23 males and 17 females were observed (Table-1). The Distribution of HBA1c in patients <5.0 ml, 5.1 – 7.0 in 29 patients, 7.1 to 9.0 in 63, 9.1 in 7 Total 100 (Table-2), Mean values of lipid profile parameters in DM-2 patients 196.9±48.1 TC, 122.7±49.3 LDL, 160.9±56.2 TG, 39.6±10.5, 32.2±11.2 VLDL (Table-3). Correlation coefficient between Retinopathy, Nephropathy with lipid profile – TC in Retinopathy 0.091, Nephropathy 0.237, LDL in Retinopathy 0.056, in Nephropathy 0.38 TG in Retinopathy was 0.116 Nephropathy 0.081, LDL in Retinopathy 0.000 Nephropathy 0.081 LVLDL in Retinopathy was 0.123 Nephropathy 0.057 (All values was $p < 0.01$), (Table-4). The mean values of lipid profile with Retinopathy and Nephropathy were significant (analysed with Anova test) (Table-5). These findings were more or less in agreement with previous studies^{5,6,7}. Dyslipidemia in type-II leading various vascular complication vascular, Neuro-Muscular, Nervous system also parasthesia, burning feet syndrome insomnia, mental confusion, early fatigue were also complications of type-II DM apart from Retinopathy and Nephropathy. It was also reported that 50% type. DM is impotent due to improper vascular supply to reproductive organs¹⁰. The reason for elevation of lipid profile is sedentary life, obesity, ingestion of fatty diet, lack of physical exercise. These elevated lipid profile will aggravate risk factors of type-2 DM like Retinopathy, Nephropathy IHD, MI because in type-II DM, there will be more viscosity in blood, there will not proper blood flow in micro-vascular and macro-vascular pattern which leads to all these complications.

SUMMARY AND CONCLUSION

The present study of serum lipid profile in type-2 DM will be helpful to physician, endocrinologist ophthalmologist, to treat the patients efficiently. Apart from Medication, physical exercise, low calories diet, will be more beneficial. But this study demands further, Biochemical, bio-mechanical, hormonal, genetics, angiological, nutritional study because exact pathogenesis of Diabetic Mellitus is still unclear.

- This Research paper was approved by ethical committee of KBN Medical College and hospital Kalburgi.

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