

Relationship between Diabetic Parameters and Lipid Profile in Patients of NRIIMS

Dr.Mir Firman Ali¹, Dr.SP Vittal², Dr.C.Ramakrishna³, Mr.B.Venkateswar Rao⁴

¹. Assistant Professor, Department Of Biochemistry, NRIIMS, Sangivalasa, Visakhapatnam, India

². Assistant Professor, Department of Internal Medicine, King Faisal University, Prince Saud Bin Jalawy Hospital, Alahsa

³. Assistant Professor, Department Of Biochemistry NRIIMS, Sangivalasa, Visakhapatnam, India

⁴. Statistician, NRIIMS, Sangivalasa, Visakhapatnam, India

Abstract: Aim: NRIIMS is a Medical Institution catering to the Population of Bheemili which is a suburb of the coastal city of Visakhapatnam. To know the relation between diabetic parameters and lipid profile in patient of NRIIMS.

Objective: Fasting blood samples for blood glucose and blood sugar levels two hours after breakfast with overnight 12 hour fasting were taken. Fasting lipids profile samples were also taken. These were done to know if any dyslipidemia was present in patients of NRIIMS.

Materials and Methods: 50 symptomatic patients were taken from medical OPD of NRIIMS. And assessed for diabetic parameters and lipid profile.

Results: There was positive correlation between FBS and total cholesterol with T value 2.45 and P value 0.0178. There was also positive correlation between FBS and Triglycerides with T value 2.437 and P value 0.0189. PPBS and total cholesterol also showed positive correlation with T value 2.067 and P value 0.0423. PPBS and LDL showed positive correlation with T value 1.313 and T value 0.01929. PPBS and Triglycerides showed positive correlation T value of 2.585 and P value 0.0126.

Conclusion: Dyslipidaemia exists in Diabetic patients of NRIIMS. The population of Bheemili region should be strictly advice with regards to their dietary habits and advice them to take less of carbohydrates and to check the type of Oil consumed.

Keywords: Diabetic parameters, NRIIMS, FBS, PPBS, Total cholesterol.

I. Introduction

Diabetes is a chronic disease characterized by hyperglycemia and produced due to insulin deficiency¹. An estimated 23.6 million people are affected by this disease in the US. It is classified into type 1 and type 2 diabetes². Other types includes MODY (Maturity onset Diabetes Mellitus), diabetes due to mutant insulin, diabetes due to mutant insulin receptors, wolfram syndrome etc³. There is also what is called metabolic syndrome⁴ where obesity plays a role in development of diabetes mellitus thru insulin resistance⁵. It is diagnose by biochemical parameters like FBS PPBS and GPT. Plasma lipids consist of triacyl glycerols 16% phospholipids 30% cholesterol 14%, cholesteryl esters 36%⁶. Four major groups of lipoproteins have been identified⁷, they are chylomicrons, LDL, HDL, VLDL and triglycerides. LDL is a sinister lipoprotein taking cholesterol from liver to peripheral tissues⁸. Cholesterol obtained from peripheral tissues is esterified by LCAT and transported back liver by HDL⁹. Dyslipidaemia is commonly associated with diabetes mellitus¹⁰.

Materials and Methods: 50 patients were taken medical OPD of NRIIMS with symptoms of polyurea, abnormal weight gain and increase apatite. Written consent of patients was taken and permission from Principle of NRIIMS was taken.

Inclusion Criteria: Age more than 15 yrs

Both male and female

Residents of Bheemili

Exclusion Criteria: Age less than 15 yrs

Non residents of Bheemili

All fasting samples with 12 hour over night fasting, of FBS and Lipid profile were taken. PPBS, two hours after breakfast were taken. All samples were centrifuged and estimated by chem 5 Semiautoanalyzer. Kits were purchased from pavan diagnostics, Visakhapatnam.

II. Results

Demographic Profile:

Table No.1 Distribution of subjects according to age group and sex (n=50)

Age group	Male	Female	Total
15-25	0	01 (2.00)	01 (2.00)
25-35	01 (2.00)	01 (2.00)	02 (4.00)
35-45	04 (8.00)	03 (6.00)	07 (14.00)
45-55	08 (16.00)	10 (20.00)	18 (36.00)
55-65	05 (10.00)	06 (12.00)	11 (22.00)
65-75	06 (12.00)	03 (6.00)	09 (18.0)
75-85	02 (4.00)	00	02 (4.00)
Total	26 (52.00)	24 (48.00)	50 (100.0)

The mean age of male subjects is 55.65 ± 13.90 years and the mean age of female subjects is 49.95 ± 12.00 years.

Fig-1

DISTRIBUTION OF SUBJECTS ACCORDING TO AGE GROUP & SEX IN %

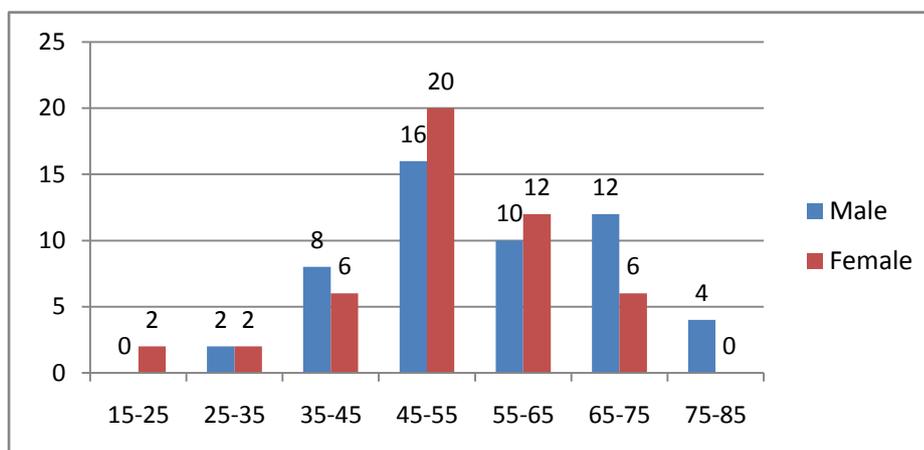


Table No.2 Distribution of subjects according category (n=50)

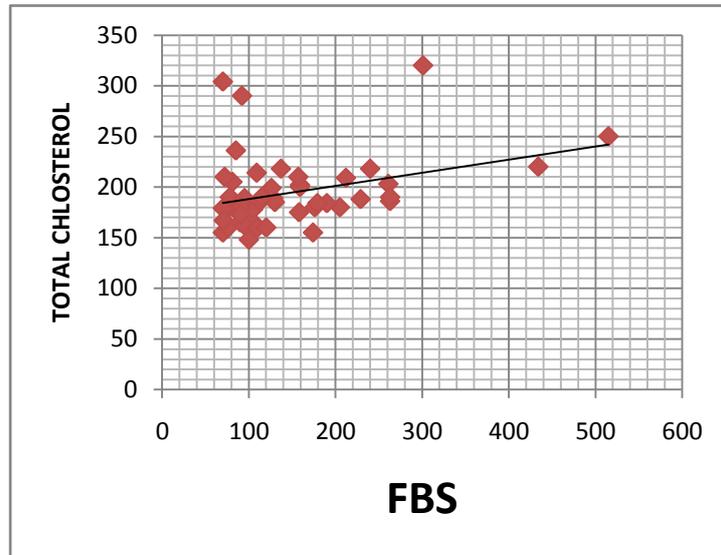
Test Type	Normal	Abnormal
1. FBS	23	27
2. PPBS	21	29
3. T.Cholesterol	47	03
4. LDL	38	12
5. HDL	40	10
6. VLDL	39	11
7. TG	33	17

Table No.3 Correlation ship between FBS & PPBS with Lipid profiles: (n= 50)

Category	r value	Degrees of freedom	t value	P value
1. PPBS vs T. Chol.	0.333773	48	2.4574	0.0178
2. FBS vs TG	0.33100	48	2.4367	0.0189
3. PPBS vs Total Cholesterol	0.287032	48	2.0670	0.0423
4. PPBS vs LDL	0.18926	48	1.3139	0.01929
5. PPBS vs HDL	0.284712	48	2.0862	0.0451
6. PPBS vs TG	0.350495	48	2.5854	0.0126

Fig-2

RELATIONSHIP BETWEEN FBS AND TOTAL CHOLESTEROL



$r = 0.333773$

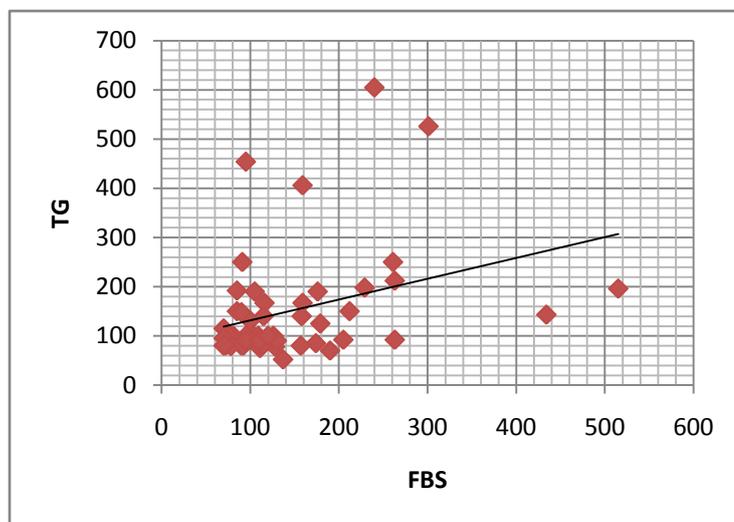
$t = 2.4574$

d.F = 48

P = 0.0178

Fig-7

RELATIONSHIP BETWEEN FBS AND TG



$r = 0.33100$

$t = 2.4367$

d.f = 48

P = 0.0189

Observation: out of 50 cases 52% were males and 48% females. Maximum % (36%) were in the age group 45 – 55 yrs. Out of 50 cases 27 (54%) showed abnormal FBS, 29 (58%) showed abnormal PPBS, 12 (24%) showed abnormal LDL, 17 (34%) showed abnormal triglycerides.

There was positive correlation between FBS and total cholesterol with T value 2.45 and P value 0.0178. There was also positive correlation between FBS and Triglycerides with T value 2.437 and P value 0.0189. PPBS and total cholesterol also showed positive correlation with T value 2.067 and P value 0.0423. PPBS and LDL showed positive correlation with T value 1.313 and T value 0.01929. PPBS and Triglycerides showed positive correlation T value of 2.585 and P value 0.0126. the results were consistent with the study of Amith Kumar Dixit et al¹¹. The study of Ahamidia showed similar results¹².

III. Conclusion

More than 50% patients of NRIIMS showed diabetic parameters in the diabetic range. 25-35% of them were associated with dislipidemia. The population of Bheemili should be strictly advised to take less carbohydrate and put a check on their dietary habits and also consume good quality oil.

Bibliography

- [1]. DM Vasudevan,Sreekumari S,K.Vaidyanathan:Text book of Biochemistry:7th Edition:Chapter24:Pg324
- [2]. .4.Stephen J Mc Phee,Maxine APapadakis,Micheal W Rabow,Current Medical Diagnosis And Treatment(CMDT),51ST Editin,2012,Chapter27,Pg1161.
- [3]. American Diabetes Assosiation.Diagnosis and Classification of Diabetes Mellitus.Diabetes Care.2011Jan;34(suppl 1):S62-9
- [4]. SimmonsRKetal.The Metabolic Syndrome:useful concept or Clinical tool?Report of a WHO Expert Consultation.2010Apr;53(4):600-5
- [5]. KahnSE etal.Mechanism linking obesity to insulin resistance and type2 Diabetes Mellitus.Nature.2006Dec14;444(7121):840-6
- [6]. Robert K Murray,David ARenda,Kathleen M Botham,Peter J kennelly,Victor W Rodwell,P.Anthony Weil:Harpers Illustrated Biochemistry:28th Edition:2011:Chapter25:Pg212.
- [7]. JohnW Baynes,MarkH Domiczak:Medical Biochemistry:3rd Edition,:Chapter18,:Pg219
- [8]. RafiMD,Text Book Of Biochemistry,2nd Edition,Chapter16,Pg362-63
- [9]. RafiMD,Text Book Of Biochemistry,2nd Edition,Chapter16,Pg362-63
- [10]. JohnW Baynes, MarkH Domiczak: Medical Biochemistry: 3rd Edition,: Chapter18,:Pg228-29
- [11]. Amit Kumar Dixit, Ranjit Dey, Aela Suresh, Siddhartha Chaudhuri, Ashok Kumar Panda, Achintya Mitra and Jayram Hazra; Journal of Diabetes & Metabolic Disorders2014.
- [12]. Dyslipidemia in type 2 diabetes mellitus patients in Benghazi, Libya Mohamed Ahmida, Zuhair Gatish, Samir Al-Badry, Ismail El-Shalmani, Osama *El- Deeb* Vol 6, No 10 (2015)