Original Article

Evaluation of Lipid Profile of Patients with Diabetes Mellitus, Mirpur, AJK

Lipid Profile of Diabetics

Zahid Mahmood[1], Muhammad Irfan Shereen[2], Adnan Bashir[3] and Asnad[4]

ABSTRACT

Objective: The objective of this study to evaluate lipid profile of patients with diabetes mellitus in Mirpur, AJK.
Study Design: Cross-sectional study
Place and Duration of Study: This study was conducted at the Department of Biochemistry Mohtarma Benazir Bhutto Shaheed Medical College, Mirpur, and AJK from February 2019 to August 2019.
Materials and Methods: In this study we select 80 diabetic patients and 20 controls. The study was conducted in the department of Biochemistry of Mohtarma Benazir Bhutto Shaheed Medical CollegeMirpurajk. We collected blood samples from both groups test and control. We analyzed blood sample for Glucose, High density lipoprotein, low density lipoprotein IDL, Triglyceride and Total cholesterol. We analyzed the sample of both groups' diabetic patients and control by Micro lab 300. We use Merck kit for analysis the sample
Results: We observed in our study that glucose level in serum is high in patients with diabetes mellitus as compare to Control. We found that fasting glucose mg/dl level is (137.8 ± 4.2) in diabetes mellitus patients while in Control fasting glucose level mg/dl is (98.4 ± 4.9). Lipid profile is also high in diabetes mellitus patients as compare to Control. Total cholesterol level in diabetes mellitus patients is higher compare to Control. Total cholesterol in diabetes mellitus patients is (245.5 ± 12.8) mg/dl and in Control is (192.6 ± 30.5) mg/dl. LDL value in diabetes mellitus patients is (127.8 ± 22.5) mg/dl and in Control is (116.5± 18.5) mg/dl. HDL value in diabetes mellitus patients (57.7± 8.5) mg/dl and in Control is (42.5 ± 9.2) mg/dl. Total glyceride value in diabetes mellitus patients is (179.2 ± 32.5) mg/dl and in Control is (143.3 ± 31.2) mg/dl
Conclusion: It is conclude that with passage of time the lipid level is high in diabetes mellitus as compare to control and the level remains constant in control .In diabetic patients some other metabolic disorder are produce with time .It should be control at initial stage as soon as possible .There is some variation occurred and it is due to environmental, factor, age, race and socio-economic factors.

Key Words: Diabetes mellitus, Lipid profile, Control

Citation of article: Mahmood Z, Shereen MI, Bashir A, Asnad. Evaluation of Lipid Profile of Patients with Diabetes Mellitus, Mirpur, AJK. Med Forum 2020;31(2):41-43.

INTRODUCTION

Diabetes mellitus (DM) is found all over the world it is globally exist all over the world. In low income country is high prevalence as compare to developed country.[1] In Pakistan this disease also prevents like Bangladesh it 13 % which is more prevalent.[2] DM is group of metabolic disorders which is accompanied mostly with hypertension and also defect found in insulin secretion and insulin action. it mean it is the group of diseases .it connect with more disease.[3] DM mostly found in two groups type -1 and type,-2 Type -1 found in acute symptoms while type .2 prevalent latter or develop.[4]The chronic DM are associated with loss of vision with retinopathy, nephropathy leads renal dysfunction,, which leads foot ulcer and amputation, cardiovascular disorders, and sexual dysfunction.[5]

Lipid play very important role in the physiology of the body. Important lipids are low-density lipoprotein cholesterol (LDL-C), total cholesterol (TC), high-density lipoprotein cholesterol (HDL-C) and triglycerides (TG).[6]T2DM have abnormal lipid profile levels of LDL- C, TG and also found low level of HDL-C.[7] TC, TG, HDL-C, LDL-C are tested and assay from serum of the patients[4].Lipid profiles are mostly checked by Physicians to detect lipid abnormality in diabetic patients. Patients have Hyperlipidemia or dyslipidemia is linked or mostly associated with type-2 diabetes .[8] The is a major risk factor for cardiovascular disease linked and associated with dyslipidemia and cardiovascular disease which cause of morbidity and mortality in patients with diabetes mellitus.[9] The objective of this study to evaluate lipid profile in patients with diabetes mellitus in Mirpur AJK.

1. Department of Biochemistry, Wah Medical College.
2. Department of Physiology, IBMS, KMU.
3. Department of Pharmacology, Fatima Memorial College of Medicine and Dentistry Lahore.
4. Department of Biochemistry, Mohtarma Benazir Bhutto Shaheed Medical College, Mirpur, AJK.

Correspondence: Dr. Asnad, Associate Professor of Biochemistry, Mohtarma Benazir Bhutto Shaheed Medical College, Mirpur, AJK
Contact No: 0332-3698204
Email: drasnadkhan@gmail.com

Received: October, 2019
Accepted: December, 2019
Printed: February, 2020

MATERIALS AND METHODS

In this study we select 80 diabetic patients and 20 controls. The study was conducted in the department of Biochemistry of Mohtarma Benazir Bhutto Shaheed Medical College Mirpur AJK. We collected blood samples from both groups test and control. We analyzed blood sample for Glucose, High density lipoprotein, low density lipoprotein IDL, Triglyceride and Total cholesterol. We analyzed the sample of both groups' diabetic patients and control by Micro lab 300. We use Merck kit for analysis the sample.

RESULTS

We observed in our study that glucose level in serum is high in patients with diabetes mellitus as compare to Control. We found that fasting glucose mg/dl level is (137.8 ± 4.2) in diabetes mellitus patients while in Control fasting glucose level mg/dl is (98.4 ± 4.9). Lipid profile is also high in diabetes mellitus patients as compare to Control.

Table No.1: Participant characteristics

	(n=80) Diabetic Mellitus Patients	Control (n=20)
Age (years)	30.4 ± 6.2	30.7 ± 7.6
Male /Female (%)	40/40	10/10
Body weight (Kg)	69.1 ± 11.4	76.4 ± 11.5
BMI (kg/m2)	25.3 ± 2.6	25.4 ± 2.7
SBP sitting (mmHg)	137.9 ± 7.2	134.4 ± 7.3
DBP sitting (mmHg)	85.6 ± 6.7	86. 7 ± 5.7

Table No.2: Ambulatory blood pressure monitoring. Mean values of blood pressure

Diabetic Mellitus Patients (n=80)	Control (n=20)
Systolic BP - 24 hours (mmHg)	
138.9 ± 8.2	135.4 ± 8.3
Diastolic BP - 24 hours (mmHg)	
86.6 ± 5.9	85. 9 ± 6.5

Table No.3: Biochemical profile of pregnant women and non-pregnant women

(n=80) Diabetic Mellitus Patients	Control (n=20)
Fasting Blood Glucose(mg/dl)	
137.8 ± 4.2	98.4 ± 4.9
Total Cholesterol (mg/dl)	
245.5 ± 12.8	192.6 ± 30.5
LDL (mg\dl)	
127.8 ± 22.5	116.5± 18.5
HDL (mg\dl)	
57.7± 8.5	42.5 ± 9.2
Triglycerides (mg\dl)	
179.2 ± 32.5	143.3 ± 31.2

Total cholesterol level in diabetes mellitus patients is higher compare to Control. Total cholesterol in diabetes mellitus patients is (245.5 ± 12.8) mg/dl and in Control is (192.6 ± 30.5) mg/dl. LDL value in diabetes mellitus patients is (127.8 ± 22.5) mg/dl and in Control is (116.5± 18.5) mg/dl. HDL value in diabetes mellitus patients (57.7± 8.5) mg/dl and in Control is (42.5 ± 9.2) mg/dl. Total glyceride value in diabetes mellitus patients is (179.2 ± 32.5) mg/dl and in Control is (143.3 ± 31.2) mg/dl

DISCUSSION

Death and disability is a leading cause of diabetes mellitus globally Patients with T2DM lipid abnormalities are frequently found. And it is increases the cardiovascular diseases risk.[10]In this study we select 80 diabetic patients and 20 controls. The study was conducted in the department of Biochemistry of Mohtarma Benazir Bhutto Shaheed Medical College Mirpurajk. We collected blood samples from both groups test and control. We analyzed blood sample for Glucose, High density lipoprotein, low density lipoprotein IDL, Triglyceride and Total cholesterol. We analyzed the sample of both groups' diabetic patients and control by Micro lab 300. We use Merck kit for analysis the sample. 40-50 years are age ranges for patient's ype-2 diabetes. It was found in other study[11]. Incidence and prevalence of T2DM are increases with age .[12-14] We observed in our study that glucose level in serum is high in patients with diabetes mellitus as compare to Control. We found that fasting glucose mg/dl level is (137.8 ± 4.2) in diabetes mellitus patients while in Control fasting glucose level mg/dl is (98.4 ± 4.9). Lipid profile is also high in diabetes mellitus patients as compare to Control. Total cholesterol level in diabetes mellitus patients is higher compare to Control. Total cholesterol in diabetes mellitus patients is (245.5 ± 12.8) mg/dl and in Control is (192.6 ± 30.5) mg/dl. LDL value in diabetes mellitus patients is (127.8 ± 22.5) mg/dl and in Control is (116.5± 18.5) mg/dl. HDL value in diabetes mellitus patients (57.7± 8.5) mg/dl and in Control is (42.5 ± 9.2) mg/dl. Total glyceride value in diabetes mellitus patients is (179.2 ± 32.5) mg/dl and in Control is (143.3 ± 31.2) mg/dl. Lipid abnormality is also found in DM patients and mostly it is associated with hypertension it is mostly occurred due metabolism disorders of lipoprotein. The total cholesterol level is associated with gender it mean that gender is affect the cholesterol level and TC is high in male and low density lipoprotein is high in male as compare to female [15, 16.17] It is conclude that with passage of time the lipid level is high in diabetes mellitus as compare to control and the level remains constant in control .In diabetic patients some other metabolic disorder are produce with time .It should be control at initial stage as soon as possible .There is some variation occurred and it is due

to environmental, factor, age, race and socio-economic factors.

CONCLUSION

It **is** conclude that with passage of time the lipid level is high in diabetes mellitus as compare to control and the level remains constant in control .In diabetic patients some other metabolic disorder are produce with time .It should be control at initial stage as soon as possible .There is some variation occurred and it is due to environmental, factor, age, race and socio-economic factors.

Author's Contribution:

Concept & Design of Study:	Zahid Mahmood
Drafting:	Muhammad Irfan Shereen
Data Analysis:	Adnan Bashir, Asnad
Revisiting Critically:	Zahid Mahmood, Muhammad Irfan Shereen, Asnad
Final Approval of version:	Zahid Mahmood

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Association AD. Diagnosis and classification of diabetes mellitus. Diabetes Care. 2014;37(1):81-90.
2. Akter S, Rahman MM, Abe SK, Sultana P. Prevalence of diabetes and prediabetes and their risk factors among Bangladeshi adults: a nationwide survey. Bull World Health Org 2014; 92:204-13.
3. Nathan DM. Long-term complications of diabetes mellitus. N Engl J Med 1993;328(23):1676-85.
4. Altaher AMR, Alewaity SS, Abu-Touima JA. Lipid Profiles Levels of Type One Diabetics Compared to Controls in Gaza Strip. Am J Biomed Life Sci 2016;4(4):61-8.
5. Association AD. Diagnosis and classification of diabetes mellitus. Diabetes Care 2014;37(Suppl 1):S81-S90.
6. Brody T. Nutritional Biochemistry. Elsevier; 1998.
7. Vuksan V, Whitham D, Sievenpiper JL, Jenkins AL, Rogovik AL, Bazinet RP, et al. Supplementation of conventional therapy with the novel grain Salba (Salvia hispanica L.) improves major and emerging cardiovascular risk factors in type 2 diabetes: results of a randomized controlled trial. Diabetes Care 2007;30(11):2804-10.
8. Mooradian AD. Dyslipidemia in type 2 diabetes mellitus. Nat Rev Endocrinol 2009;5(3):150.
9. Uttra KM, Devrajani BR, Shah SZA, Devrajani T, Das T, Raza S. Lipid profile of patients with diabetes mellitus (a multidisciplinary study). World Appl Sci J 2011;12(9):1382-4.
10. Mooradian AD. Dyslipidemia in type 2 diabetes mellitus. Nat Rev Endocrinol 2009;5(3):150.
11. Radwan M, Elsous A, Al-Sharif H, Abu Mustafa A. Glycemic control among primary care patients with type 2 diabetes mellitus in the Gaza Strip, Palestine. Ther Adv Endocrinol Metab 2018;9(1):3-14.
12. Jebb S. Dietary strategies for the prevention of pre-diabetes. MRC Hum Nutr Res Camb UK Available: https://www.nice.org.uk/guidance/ph35/evidence/ep-8-tackling-obesity-pdf-435024397. Accessed 05 February 2019.
13. Sacerdote C, Ricceri F, Rolandsson O, Baldi I, Chirlaque MD, Feskens E, et al. Lower educational level is a predictor of incident type 2 diabetes in European countries: the EPIC-InterAct study. Int J Epidemiol. 2012;41(4):1162-73.
14. Borrell LN, Dallo FJ, White K. Education and diabetes in a racially and ethnically diverse population. Am J Public Health 2006;96(9):1637-42.
15. Khan HA, Sobki SH, Khan SA. Association between glycaemic control and serum lipids profile in type 2 diabetic patients: HbA 1c predicts dyslipidaemia. ClinExp Med 2007;7(1):24-9.
16. Savoca MR, Miller CK, Ludwig DA. Food habits are related to glycemic control among people with type 2 diabetes mellitus. J Am Diet Assoc 2004; 104(4):560-6.
17. Löe H. Periodontal disease: the sixth complication of diabetes mellitus. Diabetes Care 1993;16(1): 329-34.