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CORRELATION OF SERUM TRIGLYCERIDES WITH NEWLYDIAGNOSED TYPE 2 DIABETES MELLITUS PATIENTS

Avnish Mishra[1], Anubhav Chaudhary[2], Kirti Singh[3]

[1]M.Sc. Medical Laboratory Sciences (Clinical Biochemistry)Atal Bihari Vajpayee Medical University, Lucknow, India, Avnishm754@gmail.com

[2]M.Sc. Medical Laboratory Sciences (Clinical Biochemistry) Atal Bihari Vajpayee Medical University, Lucknow, India, Anubhav.c72@gmail.com

[3]M.Sc. Medical Laboratory Sciences (Clinical Biochemistry) Atal Bihari Vajpayee Medical University, Lucknow, India, Kirtiisingh098@gmail.com

Corresponding Author:
Avnishm754@gmail.com

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ABSTRACT

Type 2 Diabetes Mellitus (T2DM) is a chronic metabolic disorder characterized by insulin resistance, hyperglycaemia, and associated lipid abnormalities, which significantly increase the risk of cardiovascular diseases. Among these abnormalities, elevated serum triglyceride levels play a crucial role in the development of metabolic complications. The present study aimed to evaluate the correlation between serum triglyceride levels and newly diagnosed T2DM patients. This prospective longitudinal study was conducted over a period of six months and included a total of 200 newly diagnosed T2DM patients aged between 35–60 years. Blood samples were collected under standard conditions and analysed for fasting blood glucose (FBS), postprandial blood glucose (PPBS), glycated hemoglobin (HbA1c), and serum triglyceride levels using semi-automated biochemical analyzers. Statistical analysis was performed to assess the relationship between triglyceride levels and glycaemic parameters. The results demonstrated that approximately 43% of the study population exhibited elevated serum triglyceride levels. A positive correlation was observed between triglyceride levels and glycemic indicators such as HbA1c and blood glucose levels, suggesting that poor glycemic control is associated with dyslipidemia. Both male and female patients showed similar trends, indicating that the association is independent of gender.The findings of this study highlight that elevated triglyceride levels are common in newly diagnosed T2DM patients and may serve as an early indicator of increased cardiovascular risk. Therefore, routine assessment of lipid profiles, particularly triglycerides, should be incorporated into the initial evaluation and management of diabetic patients.

KEYWORDS: *Triglycerides, Type 2 Diabetes Mellitus, Hba1c, Lipid Profile, Cardiovascular Risk*

INTRODUCTION

The second kind of diabetes, which can manifest in adults as neither insulin- dependent nor type 2 diabetes (NIDDM), is defined as having insufficient insulin sensitivity, elevated blood sugar and the absence or lack of insulin [1].

Causes of the type. 2 diabetes -

- Overweight - The greatest peril lies in being overweight or obese.
- Obese accumulation primarily located in the abdominal region rather than the pelvic region and lower extremities; the hazard is higher. When the waist circumference of a man is more than 40 inches or that of a woman exceeds 35 inches, she increases her chance of developing type 2 diabetes.
- Race and ethnicity - While the exact reasons are not fully understood, Type 2 diabetes is more common in people of certain racial and ethnic backgrounds compared to white people. This includes Black people, Hispanic people, Native Americans, Asians, and Pacific Islanders.
- Family history - elevated susceptibility if parents or siblings have type 2 diabetes.
- Low blood lipid levels are connected with an increased risk HDL- cholesterol and elevated triglycerides.
- Inactive lifestyle - the less active, the higher the risk. Engaging in physical activity aids in weight management by utilizing glucose as fuel and enhancing cellular responsiveness to insulin.
- Prediabetes - Prediabetes is a medical condition characterized by elevated blood sugar levels that have not yet reached the threshold for a diabetes diagnosis.
- Type 2 diabetes may develop from prediabetes if the condition is not managed.
- Polycystic ovarian disease - Polycystic ovarian Polycystic ovary syndrome (PCOS) is a prevalent medical illness marked by irregular menstrual cycles, excessive hair growth, and obesity. It significantly heightens the likelihood of developing diabetes.
- Pregnancy-related risk - Acquiring type 2 diabetes, when Pregnant women may experience the development of gestational diabetes., which occurs during pregnancy and give birth to a kid weighing over 4 kg. age, especially after the age of 45.
- Symptoms of diabetes include e.g.
  - Polydipsia
  - Polyuria
  - Weight loss [2]

Symptoms also include tiredness (fatigue), ulcers that take time to heal.[3] Often with a slow onset of symptoms.[1] High blood sugar causes some problems in the body like Cardiovascular disease, cerebrovascular accident, diabetic retinopathy resulting in loss of vision, renal failure.[2] A sudden hyperosmolar hyperglycaemic state may occur.[4][5]Type 2 diabetes is primarily attributed to the presence of obesity and a deficiency in physical activity[2], Furthermore, there are those who are genetically more susceptible than others[1]. The majority of cases are Type 2 diabetes in comparison to type 1 diabetes, where 90 percent of cases are type 2 diabetes and the remainder10 percent are gestational diabetes or a nutritious diet rich in fruits helps prevent type 2 diabetes and type 1 diabetes [2]. which are low in sugar and green leafy vegetables and weight management through regular exercise or physical activity [1]. Here are some complications that can occur during type 2 diabetes.

Adverse effects of type 2 diabetes:

- Cardiovascular diseases: Atherosclerosis, high blood pressure, heart disease, stroke, and hypertension are all increased risks in people with diabetes [6].
- Physical harm to extremities: High levels of nerve damage to limbs can lead to the destruction of nerves, resulting in tingling, numbness, scorching pain, or even loss of sensation. This typically begins at the extremities, such as the toes or fingers, and then progresses upwards.
- Other forms of nerve injury: Heart rhythm irregularities are caused by injury to the heart's nerves; some of the symptoms of gastrointestinal nerve injury include anorexia, vomiting, diarrhoea, and constipation. Impotence in men can be caused by injury to the nerves [7].
- Renal disease: Diabetes can lead to renal dysfunction, which can be either temporary or permanent and eventually requiring a kidney transplant or dialysis.

- Eye damage: Retinal blood vessel injury, a complication of diabetes, can cause blindness. Other major eye conditions, including glaucoma and cataracts, are more common in people with diabetes [8].
- Skin conditions: Skin disorders can become increasingly common in people with diabetes. such as infections caused by bacteria and fungi.
- Slow healing: Infected blisters and sores can spread rapidly if not addressed. and may not heal properly. In extreme cases, it may be necessary to amputate a limb.
- Hearing Impairment: A higher probability of hearing loss is linked to diabetes.
- Sleep apnoea: Obstructive sleep apnea is common among those who have type 2 diabetes. Both disorders can be exacerbated by obesity. Whether or if treating sleep apnoea leads to better management of blood sugar levels is unclear.
- Dementia: Type 2 diabetics have an increased risk of dementia, according to the research and Alzheimer's disease. Reduced cognitive abilities, including memory loss, are linked to hypoglycemia.

The prevalence of type 2 diabetes among young people is increasing [9]. There are other symptoms, such as blurred vision. peripheral neuropathy, vaginitis and fatigue [10]. Other complications such as skin hyper pigmentation problems with erections, incontinence, and acanthosis nigricans [11]. Type 2 diabetes may also cause mild hearing loss [12]. Type 2 diabetes is caused by beta cells not producing enough insulin when insulin resistance is present [13].

Some people have mild insulin resistance and almost no insulin secretion, whereas others have primary insulin resistance and significantly reduced insulin secretion; the extent to which insulin resistance contributes to beta cell dysfunction differs across individuals. Prevention:

Modifications to one's way of life, such as eating healthier and doing more exercise, can ward off type 2 diabetes. A 28% lower risk of diabetes is associated with very active lifestyles. Vegetables, especially dark green ones, and few sweets make up this diet. Preventing diabetes requires maintaining a healthy weight, and a 30-minute exercise can reduce blood sugar levels [14].

MANAGEMENT

Adopting healthier habits is key to controlling type 2 diabetes changes to help reduce other cardiovascular diseases and keep blood sugar in the normal range.

Here are some factors that can help in management –

1. Exercise: Regular exercise and proper nutrition management are required. Regular physical activity has many health benefits, including better regulation of blood sugar, decreased body fat, and improved lipid profiles.
2. Diet: Patients with diabetes are advised to lose weight, caloric restrictions are necessary. Other recommendations include consuming fruits, vegetables, low-fat saturated fats and reduced-fat milk and cheese. One study found that vegetarians had a significantly lower chance of developing diabetes [15].
3. Medications: There are kind of drugs are available which they reduce the level of blood sugar. Metformin is usually suggested for use as initial treatment. However, this medicine should not be used for those who have severe kidney and liver problems. If long-term use of metformin does not yield adequate results, several other classes may be added or insulin may be added. Other drug classes included –
   - Sulfonylureas agents that inhibit dipeptidyl peptidase-4
   - drugs that block SGLT2 and analogues of glucagon-like peptide-1.

An insulin injection can be added to the oral medication. Most people don't need it at first [16].

4. Reduce hypertension: Treatment goals for blood pressure in diabetics should be less than 140/90 mmHg, according to several worldwide guidelines. Nevertheless, there is scant data to support the selection of an appropriate lower limit.
5. Surgery: One effective way to treat diabetes is via bariatric surgery.

Many diabetics may control their blood sugar levels well without resorting to medicine or surgery. This method should be considered by those who struggle to control their weight and blood sugar levels [17].

Epidemiology: Between 2011 and 2030, the number of persons affected by DM would rise from 366 million to 552 million. Across the world, Type 2 diabetes mellitus is becoming more common, with 80% of the disease's patients residing in nations with below-or medium-income levels. Nearly 4.6 million people lost their lives in 2011 due to diabetes. By 2030, 439 million people would have been diagnosed with type 2 diabetes, according to research [18]. The incidence of type 2 diabetes mellitus varies greatly across geographical areas due to differences in environmental and lifestyle variables. In my quest to find out how common type 2 diabetes is in Africa, notwithstanding I came across very little reports. This epidemic is disproportionately affecting men and women in urban and rural areas across Africa, according to studies that analyse data trends [19]. Type 2 diabetes seems to be the most common kind of diabetes in Africa. less than 10% of diabetes cases are type 1 diabetes. Based on a 2011 CDC estimate, Type 2 diabetes mellitus

was identified in 90–95 percent of the 25.8 million Americans (7.8% of the total population) who received a diabetes diagnosis in 2010. The majority of persons with diabetes mellitus (DM), especially type 2 DM, would likely live in developing nations and have a metabolic syndrome (MS) diagnosis between the ages of 45 and 64 in the future decades [20].

Pathophysiology: The characteristics of type 2 diabetes mellitus include insulin resistance, reduced insulin production, and perhaps no insulin sensitivity due to the loss of pancreatic beta cells. That lowers glucose transfer to adipose tissue, muscle cells, and the liver. Increased fat breakdown occurs in the presence of hyperglycaemia [21]. Finally, fresh evidence has surfaced that connects poor alpha-cell activity to the cause of type 2 diabetes. This anomaly causes core visceral adiposity and obesity in most persons with type 2 diabetes which causes higher fasting glucagon and liver glucose levels [22]. Since type 2 diabetes develops in adipose tissue, it is clear that this tissue is crucial. One existing idea that attempts to explain this link is the portal/visceral hypothesis, which places a major emphasis on elevated levels of trans esterified fatty acids. Another theory that is just starting to gain traction is the ectopic fat storage syndrome, which involves the buildup of triglycerides in cells of the pancreas, liver, and muscle. Both hypotheses provide a framework for further investigation into the genetic and environmental variables that increase the likelihood of developing type 2 diabetes mellitus and being overweight, and how insulin insufficiency and malfunction of beta cells interact in these diseases.

Screening and Diagnosis: The diagnostic and screening tools needed to detect DM are easily accessible. During screening, it is recommended to perform the same test as when making the diagnosis, in which case a positive screening corresponds to the diagnosis of prediabetes or DM. Even though microvascular problems are present in about 25% of type 2 diabetic patients upon diagnosis [23], this indicates that these individuals have likely been living with the disease for at least five years prior to diagnosis. The standard remains the 2006 World Health Organization (WHO) National Diabetes Group Criteria or the 1997 American Diabetes Association (ADA) standards. It relies on a single high glucose reading accompanied by symptoms such as increased thirst, increased hunger, decreased weight, and polyuria. In any case, two times the value is higher than normal, when measured two hours after an oral dosage, the plasma glucose level must be at least 11.1 mmol/L (200 mg mg/dl) or 27.0 mmol/L (126 mg/dL) when fasting plasma glucose (FPG) is considered to be the gold standard [24]. The ADA recommendations for the diagnosis of diabetes mellitus, published in 1997, place special emphasis on the FPG. whereas the OGTT is the focal point of the World Health Organization's guidelines. Fructosamine and glycated haemoglobin (HbA1c) are additional helpful markers for monitoring glycemic management over time [25]. On the other hand, physicians frequently deviate from the suggested protocols. As an extra diagnostic criterion for DM, the International Committee of Experts (IEC) suggested a HbA1c level of 26.5% in July 2009.

There is no hard and fast HbA i.e. cutoff point for normalcy and DM, just as there is with glucose-based assays [26]. The International Committee Experts (IEC) decided to suggest a limit value for the diagnosis of diabetes mellitus (DM) that emphasizes specificity [27] to find a middle ground between the social costs and embarrassment of making the wrong diagnosis and the small number of patients whose hemoglobin A1c levels are less than 6.5% that would benefit from delaying diagnosis.

Triglycerides: Triacylglycerol (TG) consist of glycerol and three distinct fatty acids [28]. To a large extent, triglycerides determine the lipid profiles of all living things, including humans and other vertebrates [29]. Along with being present in the blood to aid the hepatic-cutaneous glucose transfer system, they are an essential part of human sebum and bile [30]. Fatty acids found in food include triglycerides [31]. Triglycerides can also be produced by eating too many calories. The extra calories we eat are turned into triglycerides and deposited in our fat cells. Converted from calories, our bodies release these triglycerides when we require energy. Carrying triglycerides to the body's tissues is the beta-lactam cholesterol [32]. Triglycerides are a type of carbohydrate ether that has three fatty acid molecules linked to glycerol. Any alcohol will include hydroxyl groups. Some organic acids contain a carboxyl group (-COOH). A combination of alcohols and organic acids produces esters. Every molecule of fatty acid has one carboxyl group (COOH), but every molecule of glycerin has three hydroxyl groups (HO-). According to [33], The ester connection between the carboxyl group of a fatty acid and the hydroxyl group of glycerol creates triglycerides.

Triglycerides may have any length of chain of carbon atoms, although the ones found in nature usually have 16, 18, or 20. The biosynthesis process begins with the two-carbon building block acetyl-CoA, which contributes to the characteristic even number of carbon atoms in organic fatty acids [34]. The good news is that bacteria have the ability to synthesize their own special kind of branched fatty acid. acids Fat from ruminants contains uncommon fatty acids such 15 due to the action of microbes in the rumen [35]. Linoleic acid, for instance, contains polyunsaturated fatty acids, one type of unsaturated fatty acid [36].

There is a complicated combination of different triglycerides in most natural fats. Thus, they can be melted at a variety of temperatures. Cocoa butter is distinctive in that it contains very few triglycerides, which are produced from the 1-, 2-, and 3-positions of glycerol, respectively, and from palmitic, oleic, and stearic acids [37].

CLASSIFICATION: ACCORDING TO CHAIN LENGTH

The carbon chain length of the fatty acids present allows for the categorization of fats [38]. There are subtle variations in most chemical properties that are dependent on this parameter, including acidity and melting point. Formic acid and acetic acid are the shortest fatty acids according to chemical calculations, making triformin the simplest triglyceride [39]. Things with far longer chains are typically referred to as "fatty acid" or "fat" though.

The fields of biochemistry and nutrition often divide into:

- Short-chain fatty acids (SCFA) such as butyric acid, which has fewer than six carbon atoms.
- Medium chain fatty acid (MCFA) such as capric acid, has six to twelve carbon atoms.
- Long chain fatty acids (LCFA) With thirteen to twenty-one carbon atoms (Petroselinum acid).
- Very long-chain fatty acids (VLCFA) Cerotic acid is an example of a compound with 22 carbon atoms:

MATERIAL AND METHOD

Study Design: Prospective longitudinal study

StudyDuration:6months

Sample Size: 200 patients

Inclusion Criteria:

- Newly diagnosed T2DM patients
- Age group: 18–60 years
- Both genders

Exclusion Criteria:

- Type 1 diabetes
- Pregnant and lactating women
- Severe comorbid conditions

Parameters Analyzed:

- Fasting Blood Glucose (FBS)
- Postprandial Blood Glucose (PPBS)
- HbA1c
- Serum Triglycerides

Blood samples were collected using standard venipuncture techniques and analysed using semi-automated analyzers. Statistical analysis was performed using appropriate tests, with $p < 0.05$ considered significant.

RESULT

Age has been shown to be a factor influencing the levels of serum triglycerides in individuals who have just been diagnosed with Type 2 Diabetes Mellitus. A risk factor for cardiovascular disease, elevated triglycerides levels are more common in adults between the ages of 55 and 60.

This study comprised a total of 120 patients diagnosed with type 2 diabetes. There were three categories used to classify these 200 newly diagnosed type 2 diabetics:

35 to 44 years

45 to 54 years

55 to 60 years

About 45 Patients were in between 35 – 44 age group, 62 patients were between 45 – 54 age group and 93 patients were of 55 – 60 age group.

Table 3.1: Showing age frequency of T2DM patients of various age demographics

S. N.	Age Group	Frequency	Percent
1	18- 34	0	0
2	35 - 44	45	22.5 %
3	45 - 54	62	31 %
4	55 - 60	93	46.5 %
Total Patients		200	100 %

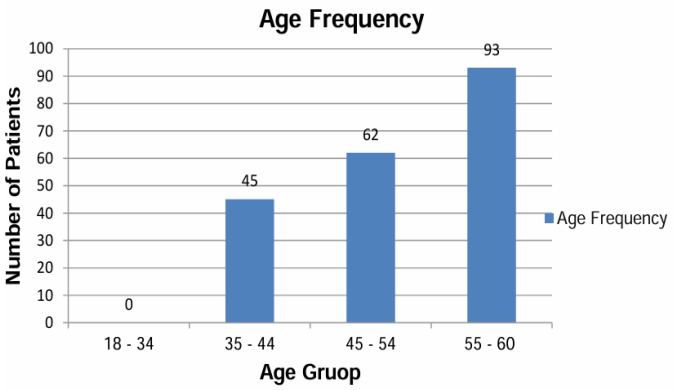

Figure 3.1: Showing age frequency of T2DM patients of various age demographics

After analysis of the triglycerides level of these patients, the result will be divided into 4 categories –

Normal

Borderline

High

Very high

Among all the 45 patients who belongs to 35 – 44 age group,35 patients were found normal TG levels, whereas, 8 patients at the borderline, 2 at high level and no patients were found at very high level.

Among all the 62 patients who belongs to 45 – 54 age group, 15 patients were found normal TG levels, whereas, 19 patients at the borderline, 23 at high level and 5 patients were found at very high level.

Among all the 90 patients who belongs to 55 – 60 age group, 9 patients were found normal TG levels, whereas, 28 patients at the borderline, 34 at the high level and 22 patients were found at very high level.

It is observed that out of 200 patients, 86 patients have increased TG level. In the age group between 35 – 44 year, 1% patients have increased TG level. However, in age group between 45 – 54 year, and age group between 55 – 60 year patients have increased TG level as 14% and 28 % respectively. The overall about 57% patients have normal TG level and 43% patients have increased TG level.

Table 3.2: Showing correlation of serum triglyceride in T2DM patients of different age groups

Total No. of T2DM patients	Age Group's (Year)	Normal TG levels	Bordering levels	High TG levels	Very high TG levels	Total No. of cases	Percentage
200	35-44	35	08	02	0	45	22.5 %
	45-54	15	19	23	5	62	31 %
	55-60	9	28	34	22	90	46.5 %

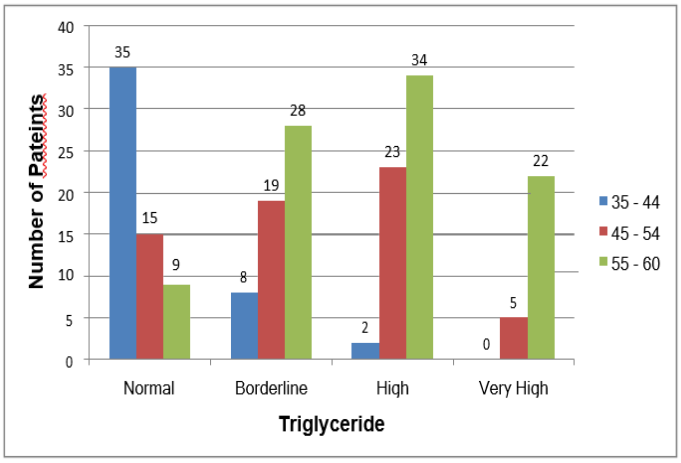

Figure 3.2: Showing correlation of serum triglycerides in T2DM patients of different age groups

The graph represents the standard deviation (SD) of biochemical parameters in male and female T2DM patients, indicating variability in test values. Triglycerides show the highest variability in both males (10.39) and females (7.4), suggesting large fluctuations among individuals. Postprandial blood sugar also shows moderate variation (male: 2.19, female: 2.01). Fasting blood sugar has relatively low variability (male: 1.17, female: 1.30 approx.), indicating more consistent values. HbA1c shows the least variation (male: 1.08, female: 1.24). Overall, males show greater variability in triglycerides, while females show slightly more variation in glycemic parameters.

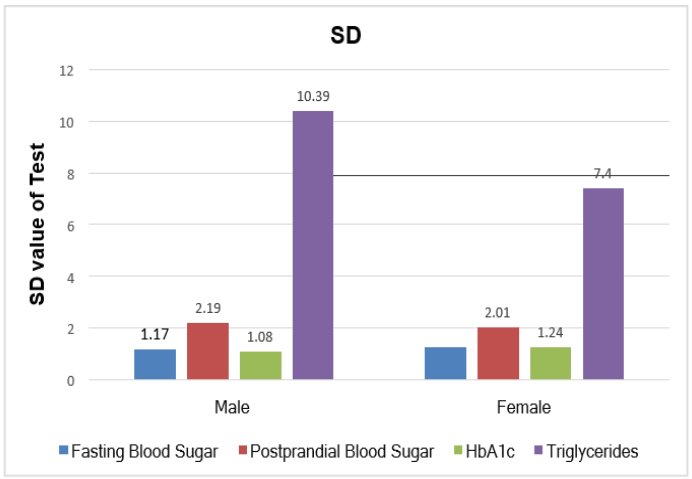

Figure 3.3: Showing SD of Fasting Blood Sugar, Postprandial Blood Sugar,HbA1c and Triglycerides in male and female T2DM patients.

The figure 3.3 compares mean biochemical parameters between male and female T2DM patients. Fasting blood sugar levels are slightly higher in males (7.96) than females (7.69), indicating comparable glycemic control. Postprandial blood sugar is higher in females (8.74) compared to males (8.29), suggesting greater post-meal glucose variation in females. HbA1c levels are also slightly higher in females (7.72) than males (7.47), reflecting poorer long-term glycemic control. However, triglyceride levels are significantly higher in males (7.24) than females (5.31). Overall, females show poorer glucose control, while males exhibit higher lipid levels.

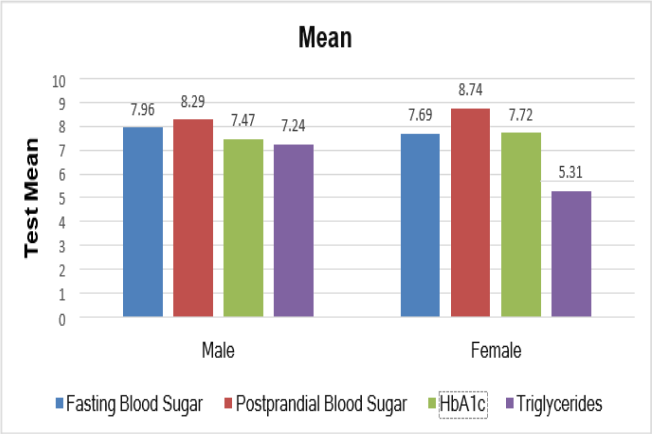

Figure 3.4: Showing Mean of Fasting Blood Sugar, Postprandial Blood Sugar,HbA1c and Triglycerides in male and femaleT2DM patients.

The graph presents the p-values for fasting blood sugar (0.0257), postprandial blood sugar (0.0329), HbA1c (0.0322), and triglycerides (0.0330). All p-values are less than 0.05, indicating that the results are statistically significant. This means there is a meaningful difference or association between these biochemical parameters and the studied variables (such as gender or age groups). Fasting blood sugar shows the strongest significance with the lowest p-value. Overall, the findings confirm that variations in glucose levels, HbA1c, and triglycerides are not due to chance and are clinically important in T2DM patients.

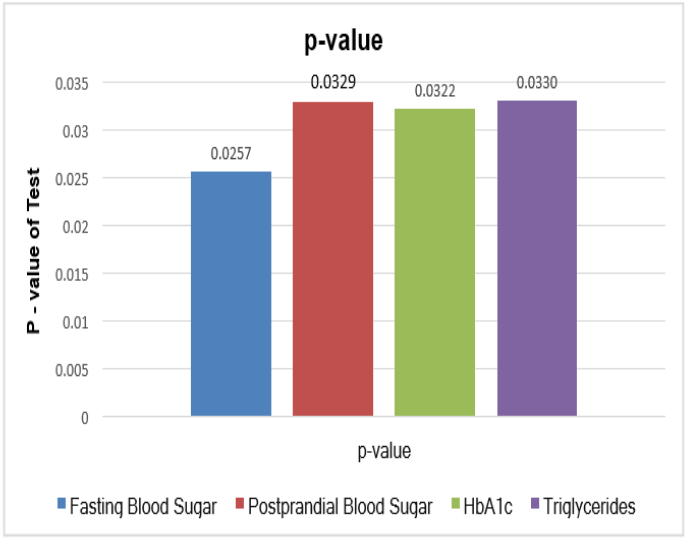

Figure 3.5: Showing p-value of Fasting Blood Sugar, Postprandial Blood Sugar, HbA1c and Triglycerides in male and female T2DM patients.

DISCUSSION

Among the many interconnected lipid and lipoprotein abnormalities linked to type 2 diabetes is a decrease in HDL cholesterol levels. tiny dense LDL particles predominating and increased triglycerides These abnormalities are common, even among the normally developing human population. "LDL" cholesterol—the good kind. Many patients develop metabolic syndrome and type 2 diabetes before they ever have insulin resistance syndrome, which shares these changes. In fact, compared to those who do not get diabetes, those who are prediabetic often have an atherogenic pattern of risk markers, such as elevated total and triglyceride cholesterol and decreased HDL cholesterol. Lipoprotein particle size and concentration among the VLDL, LDL, and HDL subclasses are significantly altered by insulin resistance. Research suggests that all of these dyslipidemic characteristics raise the risk of cardiovascular disease, which is the main killer of type 2 diabetics.

The mean & SD of fasting blood sugar is 7.96 mmol/l with SD of 1.17 in male and 7.69 mmol/l with SD of1.24 in female, 2 hours postprandial blood glucose of 8.29 mmol/l with SD of 2.19 in male and 8.74 mmol/l with SD of 2.01 in female respectively and HbA1c mean 7.47% with SD of 1.08 in male and 7.72% with SD of 1.24 in female, and TG means value of 7.24 mmol/l with SD of 10.39 in male and 5.31 mmol/l with SD of 7.40 in female. Both of the study groups compare fasting blood glucose (p-value 0.0257), post prandial glucose (p-value 0.0329), HbA1c (p-value 0.0322)

and TG (p-value 0.0330). The result of the present study showed significantly increased level of serum triglycerides (p-value 0.0330) in newly diagnosed T2DM patients. These findings are in good agreement with other studies.

Many studies have shown a link between elevated triglycerides and coronary heart disease. In addition, recent reports have shown that elevated LDL and serum triglyceride levels are predictive of coronary events and that this is independent of other risk factors for coronary disease. In this study, we found that the correlation of serum triglycerides in patients with newly diagnosed type 2 diabetes is often observed with aging and is 47% higher. Studies conducted in Pakistan have shown that the proportion of elevated triglycerides varies from 50 to 82%. A study conducted in China showed a 42% increase in triglycerides in type 2 diabetes. Therefore, our results are good in the frequency mentioned above. A strength of this study is that it measured fasting serum triglycerides, which is a better predictor of CAD risk. The European Society of Cardiology (ESC) guidelines define treatment goals based on fasting triglyceride levels. However, some studies could not confirm whether triglyceride levels were measured in a fed or fasted state. Fasting levels may reduce the uncertainty associated with differences in postprandial phlebotomy. However. postprandial lipids, partially hydrolyzed chylomicrons and very LDL remnants appear to accelerate atherogenesis by worsening endothelial dysfunction, increasing the number of atherogenic small LDL particles and promoting thrombosis and inflammation. Therefore, it can be argued that postprandial TG predicts vascular risk more accurately than fasting TG. As a result, hypertriglyceridemia is associated with increased CVD risk during feeding and fasting. Management may benefit from this study's findings. Interventions should be put in place to maximize adherence to lifestyle modifications, cholesterol-lowering drugs, and other treatments, and clinicians should keep stressing that all patients exercise often and adhere to dietary recommendations to improve glucose balance and lipid profiles.

CONCLUSION

This study was conducted on persons recently diagnosed with type 2 diabetes to establish the correlation between blood triglyceride levels and the onset of type 2 diabetes. Our study revealed that around 43% of persons newly diagnosed with Type 2 Diabetes mellitus had a significant increase in their blood triglyceride (TG) levels. This finding was seen in a sample size of 200 patients.

Hypertriglyceridemia is a frequent complication of diabetes, and there is mounting evidence that even mild increases in triglycerides may be changed to reduce the likelihood of cardiovascular disease. Patients with consistently high triglycerides (> 200 mg/dL) and low HDL levels despite statin treatment should be treated with triglyceride-lowering therapies, especially omega-3 fatty acids. Essential aspects of hypertriglyceridemia management include glycemic control and dietary changes. Diabetes patients, however, should be aware that they are more likely to have polypharmacy. Therefore, it is important to carefully consider the advantages of starting new drugs in relation to the potential negative impact on the patient's adherence to their current treatment plans. Current research is being conducted to assess the effectiveness of several medications in reducing triglyceride levels and improving dyslipidaemia in individuals with diabetes. Further studies will provide further insights on how to manage moderate hypertriglyceridemia in this at-risk group. Upon accounting for pertinent confounders, there was a positive correlation seen between glycated hemoglobin and high triglyceride levels. Therefore, HbA1c may serve as an indication of triglyceride levels and can be considered as one of the indicators of cardiovascular risk factors in individuals with type 2 diabetes mellitus.

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AUTHOR PROFILE

Avnish Mishra is currently serving as an Assistant Professor in the Department of Medical Laboratory Science at Bora Institute of Allied Health Sciences, Lucknow since 26 December 2024. He completed his Bachelor's degree in Medical Laboratory Technology from Chhatrapati Shahu Ji Maharaj University, Kanpur & Master's degree in Medical

Laboratory Science (Clinical Biochemistry) from Atal Bihari Vajpayee Medical University, Lucknow. He has participated in National & International Conferences. He has also been involved in mentoring students and academic activities related to Medical Laboratory Science. He is the member of Association of Community Pharmacotherapeutics (ACP).