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Research Paper

**STUDY OF THE CORRELATION BETWEEN FATTY DIABETES AND
HYPERCHOLESTEROLEMIA**

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Abstract

Objective: Dyslipidemia is common during fatty diabetes. The objective of our study is to show the correlation between fatty diabetes and hypercholesterolemia. Patients and Method: Blood glucose is determined by the enzymatic method. Total cholesterol and HDL cholesterol are determined by the kinetic method. These tests were performed in diabetic subjects. Results: The results showed that the percentage of total hypercholesterolemia in hyperglycemic subjects is higher than the results obtained in normoglycemic subjects. HDL hypocholesterolemia in hyperglycemic patients is higher than in normoglycemic subjects. Conclusion: The results of this study showed that there is no correlation between fatty diabetes and total hypercholesterolemia in diabetic subjects treated at the Sancta Maria de Parakou Medical Center.

Key words: Fatty diabetes, glucose, total cholesterol, HDL cholesterol.

INTRODUCTION

Fatty diabetes (or type 2 diabetes) is defined by hyperglycemia, which occurs when the amount of plasma insulin is no longer sufficiently produced and/or active in relation to the body's needs (1).

During the course of fatty diabetes, lipid abnormalities are frequent and pronounced and are an important factor in increasing cardiovascular risk. It is often represented by hypertriglyceridemia and hypoHDLemia (2).

The objective of this study is to show the correlation between fatty diabetes and hypercholesterolemia.

PATIENTS AND METHODS

Patients

The study took place at the Sancta Maria Medical Center in Parakou over a period of six months, from April 1 to September 30, 2020. It is a prospective and analytical study of data collected from non-hypertensive subjects who came to the center for consultation. We included in our study all diabetic patients who consented. Blood was collected from all these patients.

Measurement of biochemical parameters

Patients' blood was collected in dry tubes (without anticoagulant) and fluorinated. Glucose was determined by the enzymatic method. Total cholesterol and HDL cholesterol were determined by the kinetic method.

Statistical analysis

The statistical data were evaluated using Excel 2007.

RESULTS

This study involved 68 diabetic subjects. 60% of the diabetic subjects who participated in the study were women versus 40% men. Forty-three percent of the subjects were between the ages of 20 and 40, which is the majority age group, followed by the 40 to 60 age group (37%), and the remaining 20%, or 20%, were over 60 years of age.

Blood glucose, total cholesterol and HDL-cholesterol were measured in the 68 suffering subjects who came to the center.

The results showed that our study population is subdivided into three groups: hyper, normo and hypoglycemic patients. The percentages of normocholesterolemia (83.33%) and hypercholesterolemia (16.67%) in hyperglycemic subjects are higher than the results obtained in normoglycemic subjects. HDL hypocholesterolemia levels (16.67%) in hyperglycemic subjects were higher than in normoglycemic subjects (11.76%). The correlation curve between blood glucose and total cholesterol shows a poor correlation between the two parameters.

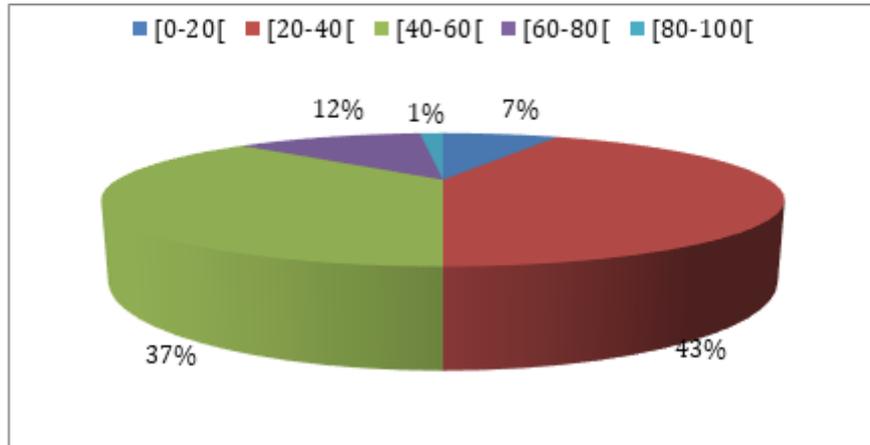


Figure 1: Distribution of Patients by 20 Years of Age

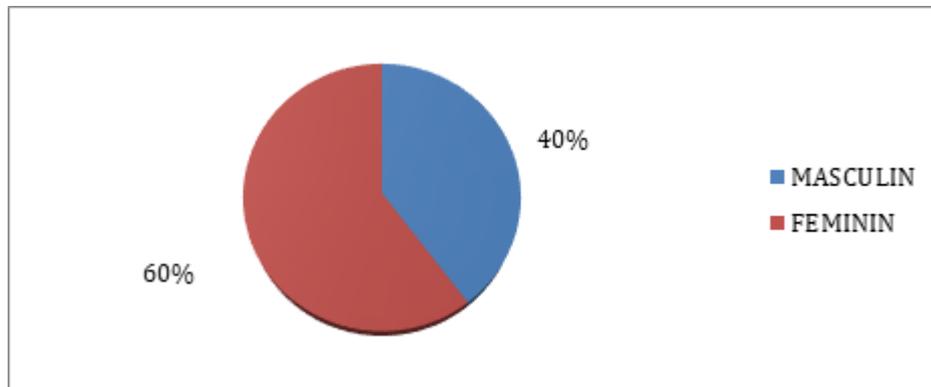


Figure 2: Gender Distribution of Patients

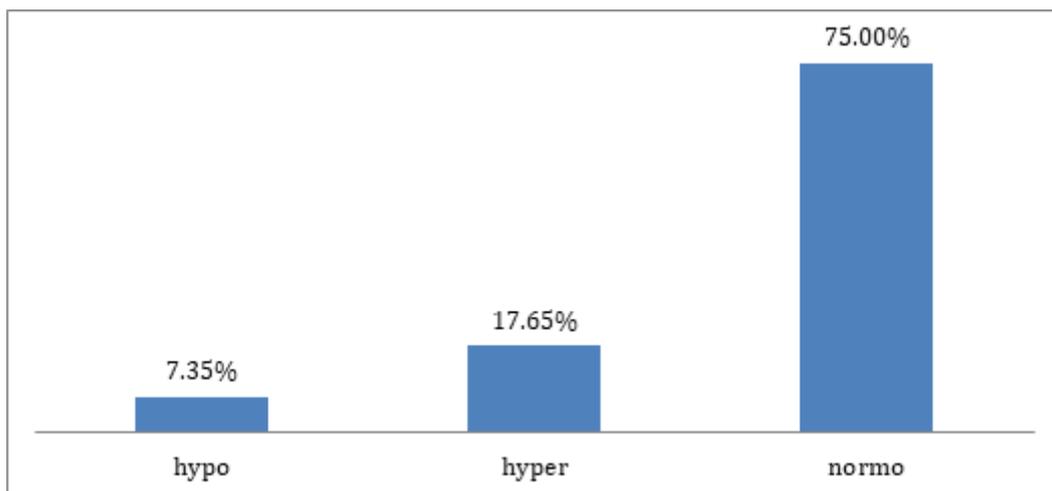


Figure 3: Variation in blood glucose levels in the study population

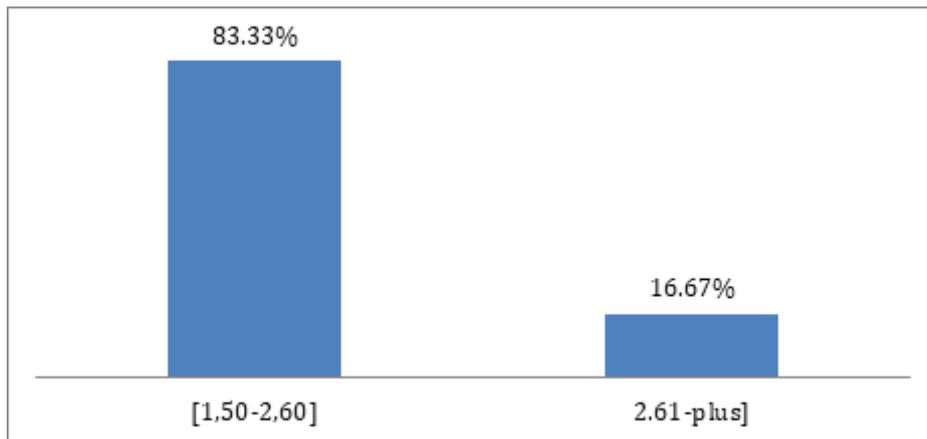


Figure 4: Change in total cholesterol in hyperglycemic subjects.

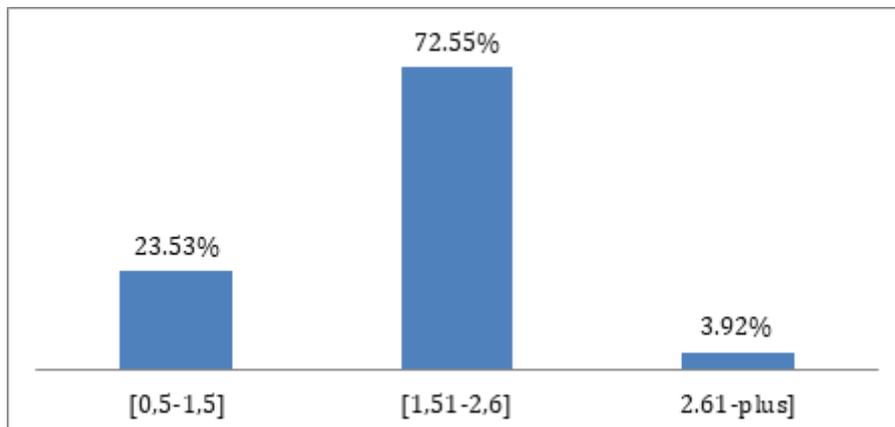


Figure 5: Change in total cholesterol in normoglycemic subjects

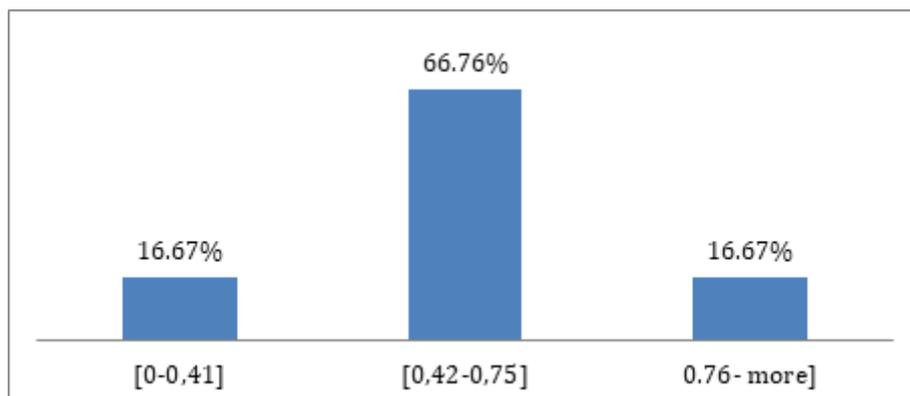


Figure 6: HDL Cholesterol Change in Hyperglycemic Subjects

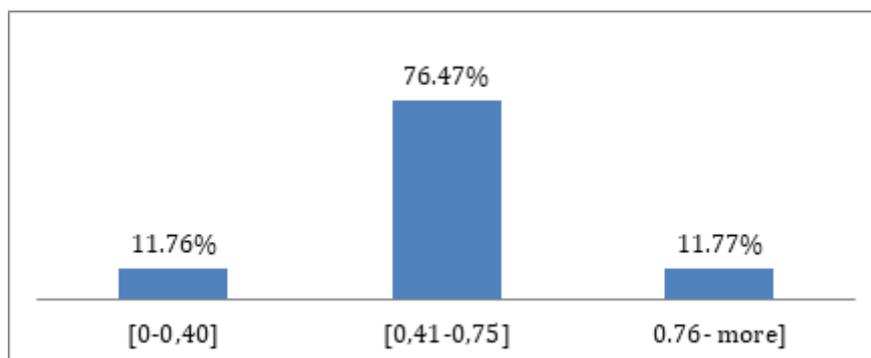


Figure 7: HDL Cholesterol Change in Normoglycemic Subjects

DISCUSSION

The objective of this study is to show the correlation between fatty diabetes and hypercholesterolemia. Hypercholesterolemia is a dyslipidemia most often encountered in subjects with fatty diabetes (2).

We have a clear feminine predominance (gender- female/male ratio 1.5). Several authors had already observed a high prevalence of fatty diabetes in women compared to men. According to Pessinaba (2013), 69% of patients included in his study are female, making a sex ratio (female / male) of 2.2. Data from the census of St. Louis had estimated the sex ratio (female / male) at 1.8 (4). This imbalance could be explained by the emigration of men to the capital (5). But this reason alone cannot explain the observed difference. There is also the interest of women in scientific studies (6). Through our study, we observed that adults in the 20 to 40 age group were the most afflicted by fatty diabetes. Our results disagree with those of Ajdi in Morocco (2).

This study shows that 16.67% of hyperglycemic subjects have a high total cholesterol level. Type 2 diabetes is not often associated with high total cholesterol. However, it is often associated with high triglycerides and low HDL cholesterol (7,8). Therefore, the elevation of total cholesterol in diabetic patients at the Sancta Maria Medical Center in Parakou would actually be hypertriglyceridemia. This hypertriglyceridemia is often associated with a decrease in HDL cholesterol (in the case of the 16.67% of our study), which is an additional cardiovascular risk factor in type 2 diabetes.

CONCLUSION

In this study, we investigated the correlation between fatty diabetes and hypercholesterolemia using biochemical tests.

The results of this study showed that there is a low intensity correlation between fatty diabetes and total hypercholesterolemia in diabetic subjects treated at Sancta Maria

Medical Center in Parakou. However, an in-depth study of this correlation is desired. It will be done according to the triglyceride values of diabetic patients.

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