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ASSOCIATION OF GLYCEMIC CONTROL WITH SELECTED HEMATOLOGICAL AND LIPID PROFILE PARAMETERS AMONG PALESTINIAN WOMEN WITH TYPE 2 DIABETES MELLITUS

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Abstract

Background: Diabetes is a chronic disease that affects many people around the world. It happens when the level of glucose in the blood becomes higher than normal because of a problem with insulin. This problem can be either low insulin production or the body not responding to insulin in the correct way. There are two main types of diabetes. Type 1 is an autoimmune disease where the immune system attacks the beta cells in the pancreas. Because of that, the patient cannot produce insulin and needs insulin injections for life. This type is less common. Type 2 diabetes is more common and usually affects adults. It may happen because of insulin resistance, or sometimes because the body does not produce enough insulin. Factors like obesity, lack of physical activity, and unhealthy lifestyle can increase the risk. Controlling blood sugar is important to reduce complications. High blood glucose may affect different body parameters, including blood cells and lipid levels. In this study, we want to examine the relationship between blood glucose level and some hematological parameters (RBC, WBC, and platelets) in addition to lipid profile in Palestinian women with type 2 diabetes in Hebron. We focused on women because hormonal and physiological changes may influence glucose and lipid levels .

Main Objective:

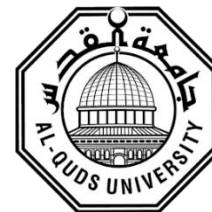
To evaluate the hematological and biochemical changes in female patients with type 2 diabetes mellitus according to HbA1c levels

Specific Objectives

1. To determine the correlation between HbA1c and hematological parameters

To investigate the association between HbA1c and CBC indices among female T2DM patients.

2. To determine the correlation between HbA1c and lipid profile



To assess the relationship between HbA1c levels and lipid abnormalities in the study population.

3. To identify cardiovascular risk indicators

Methodology: Data for this study were collected from Al-Ahli Hospital from two groups of Palestinian women. The first group consisted of women with type 2 diabetes, divided into two subgroups: a control group (HbA1c level less than 7) and an uncontrolled group (HbA1c level greater than 7). The second subgroup consisted of women without type 2 diabetes.

In addition to HbA1c values, complete blood count (CBC) results were collected and analyzed for all participants. Statistical analysis was performed using SPSS software to identify relationships between the populations.

The results were consistent with internationally recognized scientific and physiological facts. The research demonstrated a strong positive correlation between elevated HbA1c and lipid abnormalities (cholesterol and triglycerides), which are key risk factors for cardiovascular disease in diabetic patients. As for hematological indicators, both red and white blood cell counts showed a positive correlation with HbA1c, while MCV showed an inverse correlation.

Conclusion: The results of this study show that keeping HbA1c levels below 7% is linked with better metabolic and hematological status in patients with Type 2 Diabetes Mellitus. This is seen through lower total cholesterol and triglyceride levels, which suggests a lower risk of cardiovascular complications in well-controlled patients compared to those with poor glycemic control. In addition, changes in some hematological parameters were found in poorly controlled diabetic patients, especially in red and white blood cell indices, which may be related to inflammation and metabolic changes that happen with long-term high blood sugar.

Key words: Type 2 Diabetes Mellitus, HbA1c, Haematological Parameters, Lipid Profile, Palestinian Women, Glycemic Control, Cardiovascular disease.