

A STUDY OF THE EFFECT OF DIABETES ON PATIENTS WITH RENAL FAILURE IN WASIT PROVINCE

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Abstract:

Kidney failure is one of the most common diseases in the world, where the patient's treatment is according to the stage the patient is, the most difficult disease is treated with dialysis once or twice a week or by replacing one of the kidneys, the complications of this disease increase when it is associated with other diseases, for example. Heart disease, liver disease and diabetes, where the treatment is more difficult. In this article, random samples were taken from dialysis patients, and they are in two groups, the first is kidney failure patients who developed diabetes type 2 later, the second group, diabetes type 1 patients who had kidney failure. later. In this article, we will try to find the physiological and vital differences between the two groups, using biochemical parameters.

Keywords

Diabetes, Renal Failure, Diabetic kidney disease, Hyperglycemia

1-1 Introduction

Kidney failure is one of the diseases spread all over the world and is considered one of the serious diseases that lead to death (1). Acute renal insufficiency or acute kidney injury (AKI) refers to the sudden onset of kidney injury within a few hours or days. In adults, oliguria is defined as urine output less than 400 mL/day, or less than 15 mL/hour, usually It indicates a low glomerular filtration rate (GFR) and a rapid decline in kidney function over a period of hours to weeks (2). Chronic kidney disease (CKD), also known as chronic kidney failure, is a progressive loss of kidney function that is manifested by a decreased glomerular filtration rate or an increase in urinary albumin excretion, and is an important risk factor for disease (3). The complications of this disease increase in the human body when it is associated with one of the other diseases, such as heart disease, liver disease, and diabetes (4). Diabetic kidney disease (DKD) is the most common complication of diabetes and a leading cause of kidney failure worldwide (5). Despite its prevalence, the mechanisms underlying early kidney damage in DKD are still poorly understood. (6).

1-2 Diabetic effects

Diabetes mellitus (DM) is one of the common diseases at the present time and is defined as a disorder in the metabolism and an abnormally high concentration of sugar in the blood due to a deficiency of the hormone insulin or a decrease in the sensitivity of tissues to insulin, or both (7-8) This measures the level of sugar in Blood after an overnight fast (not eating food). A fasting blood glucose level of 99 mg/dL or lower is considered normal, 100 to 125 mg/dL indicates that you are prediabetic, and 126 mg/dL or higher indicates that you have diabetes (9) When blood sugar rises in people with diabetes, the blood vessels (inside the nephrons) and nerves are affected with the passage of time, in addition to filtering large amounts of glucose that constitutes a burden on the kidneys, and after several years the beneficial protein begins to be excreted with the urine, and in late cases It can reach the stage of kidney failure (10).

Result*	A1C Test	Fasting Blood Sugar Test	Glucose Tolerance Test	Random Blood Sugar Test
Diabetes	6.5% or above	126 mg/dL or above	200 mg/dL or above	200 mg/dL or above
Prediabetes	5.7 – 6.4%	100 – 125 mg/dL	140 – 199 mg/dL	N/A
Normal	Below 5.7%	99 mg/dL or below	140 mg/dL or below	N/A

*Results for gestational diabetes can differ. Ask your health care provider what your results mean if you're being tested for gestational diabetes.

1-3 Association of diabetes mellitus with renal failure

The kidney is the organ responsible for purifying and filtering the blood from toxins and metabolites. The kidney receives blood through the renal arteries and exits from the renal veins. The body gets rid of its waste in two ways: the solid materials that come out of the large intestine in the form of feces, and the other consumed substances that are dissolved in the blood are disposed of with the urine. If there is a shortage of water in the body, the kidneys produce less urine. The second function of the kidneys is to separate the consumed substances resulting from metabolism while preserving elements necessary for the functioning of the body (11) Diabetic nephropathy is the most common cause of end-stage renal disease and develops in 20% to 30% of patients with diabetes (12).

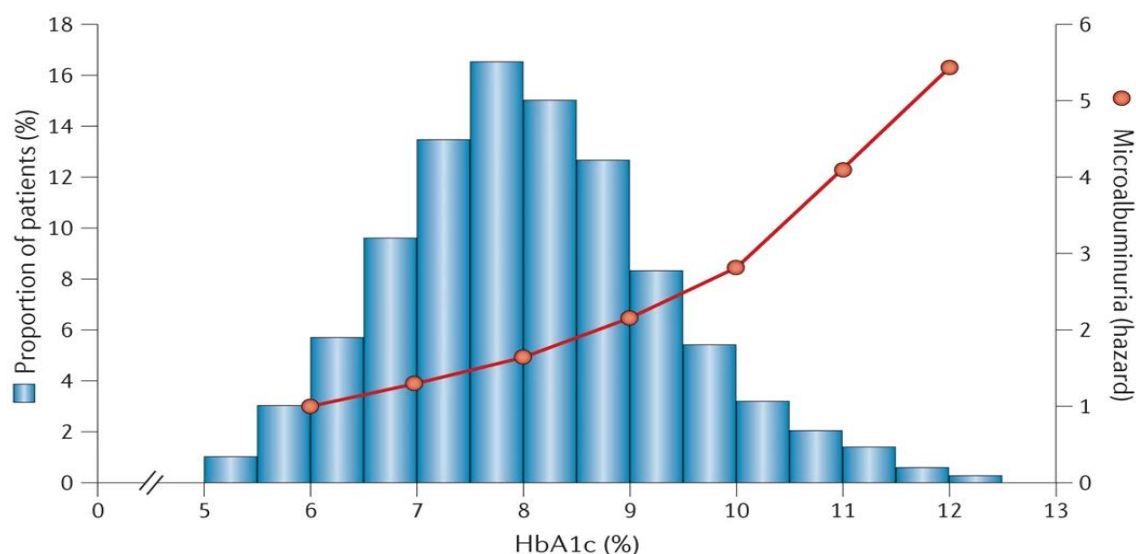
1-4 Risk factors for moderate diabetic renal disease

The vital signs of patients with renal failure change according to the degree of association of diabetes with renal failure, especially when taking some drugs such as tenofovir (13). If a person has diabetes, factors that can increase the risk of developing diabetic nephropathy include:

1. Uncontrolled high level of blood sugar in the body (hyperglycemia)
2. Uncontrolled high blood pressure (hypertension)
3. High level of cholesterol in the blood
4. Obesity and a family history of diabetes and kidney disease (14, 15)

1-5 Determinants of diabetes mellitus

Some clinical signs show the relationship between glucose and diabetes complications (16). A prospective clinical study by Jean Berart and his Belgian colleagues unequivocally established that the degree and duration of hyperglycemia is associated with microvascular complications, including CKD (17). Subsequently, trials subsequently validated this causal association in both type 1 diabetes and type 2 diabetes mellitus with renal impairment (18–19). However, although traditional markers of glucose levels, such as glycated hemoglobin (HbA1c), are associated with low albuminuria, it is also evident that many patients with poor glycemic control do not develop renal complications, whereas Others occur despite extensive and dedicated interventions. This discrepancy may be due to the failure of markers such as HbA1c to capture the dynamic glycemic dysregulation associated with diabetes. Indeed, even in the absence of chronic hyperglycaemia, transient hyperglycaemia, transient hypoglycemia, or an increased glycemic variance around the normal mean may have long-term and long-term effects on the development and progression of diabetes-related complications, including This includes kidney disease (20-21)



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The risk of development of an albumin excretion rate of >30 mg per day in adults from the FinnDiane study of individuals with type 1 diabetes and no chronic kidney disease (CKD) (orange), and the distribution of glycaemic control (histogram) in those patients with type 1 diabetes who develop microalbuminuria (bars) (P.-H.G. and M.C.T., unpublished observations).

Discussion

This study showed the continuous increase in the number of dialysis patients in Wasit province, where it was shown that the percentage of dialysis patients is 142 patients per million of the population of Wasit province, where 43% suffer from diabetes and high pressure, while 27% suffer from chronic hypertension and 17% from disease Diabetes and 13% due to other unknown causes. The results of 80 patients between the ages of 16 to 60 years suffering from diabetes were taken from the dialysis department at Al-Zahra Teaching Hospital in Wasit province. They were divided into two groups. It consisted of 40 samples for each group, and it was found that there is a relationship between the total mortality rate for patients who suffer from diabetes, which is higher than the rest of the causes by 6%. This is due to many causes, including the causes of immunodeficiency in diabetic patients, as well as irregular work and body functions, which causes the body to not respond to medications and irregular metabolic processes in the body.

Result

This simplified study showed that there is a relationship between the total death rate to patients who suffer from diabetes, which is higher than the rest of the causes by approximately 6%.

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