Diabetic Nephropathy

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INTRODUCTION:

Diabetes Mellitus (DM) is an endocrinological disorder resulting from an irregularity in insulin secretions, insulin actions or both. Absence or reduced insulin in turn leads to persistent abnormally high blood sugar and glucose intolerance.

It can be classified into:

- Type 1 diabetes.
- Type 2 diabetes.
- Gestational diabetes mellitus (GDM).
- Specific types of diabetes due to other causes, e.g., monogenic diabetes syndromes (such as neonatal diabetes and maturity-onset diabetes of the young [MODY]), or diseases of the exocrine pancreas (such as cystic fibrosis).

Complications of DM can be classified into:

- Acute (diabetic ketoacidodsis, hyperosmoler).
- Chronic (macrovasular, microvascular).[1]
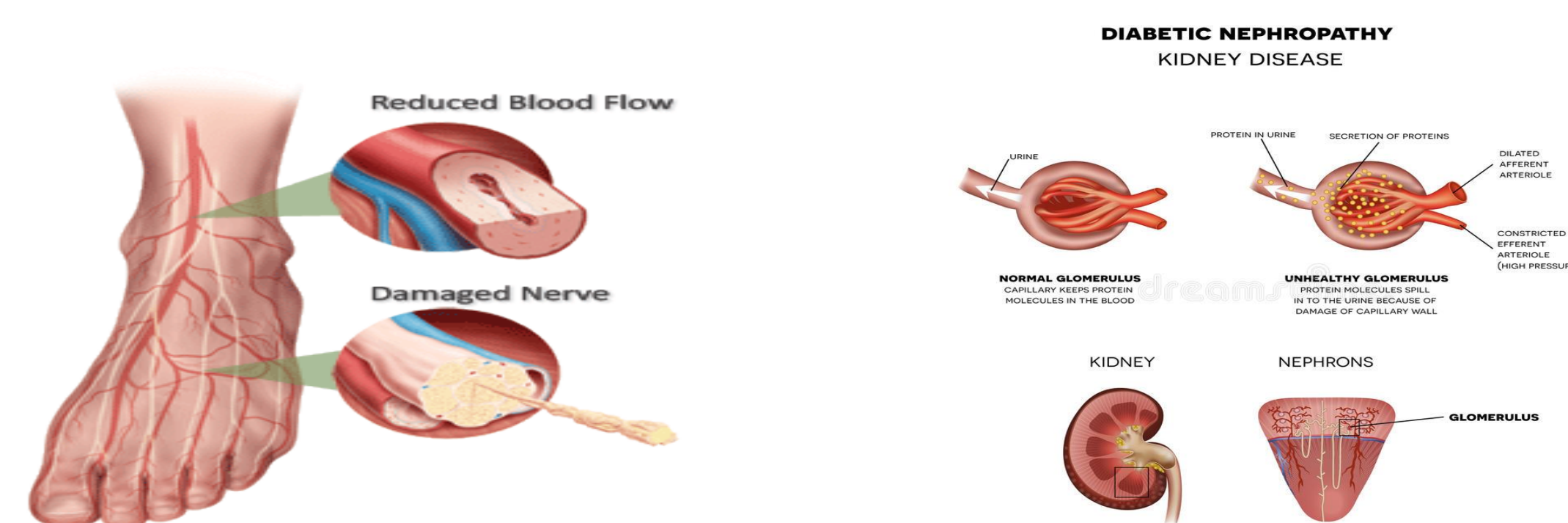
- **Diabetic nephropathy (DN) or diabetic kidney disease** is a syndrome characterized by the presence of pathological quantities of urine albumin excretion, diabetic glomerular lesions, and loss of glomerular filtration rate (GFR) in diabetics.
- It has been categorized into stages based on the values of urinary albumin excretion (UAE): microalbuminuria and macroalbuminuria.
- Incipient nephropathy is the initial presence of low but abnormal amounts of urine albumin, referred to as microalbuminuria (persistent albuminuria at level 30–299 mg/24 hours). Overt nephropathy or macroalbuminuria (persistent albuminuria at level ≥300 mg/24 hours) develops after many years in type 1 diabetes but may be present at the time of diagnosis of type 2 diabetes. [2,3]
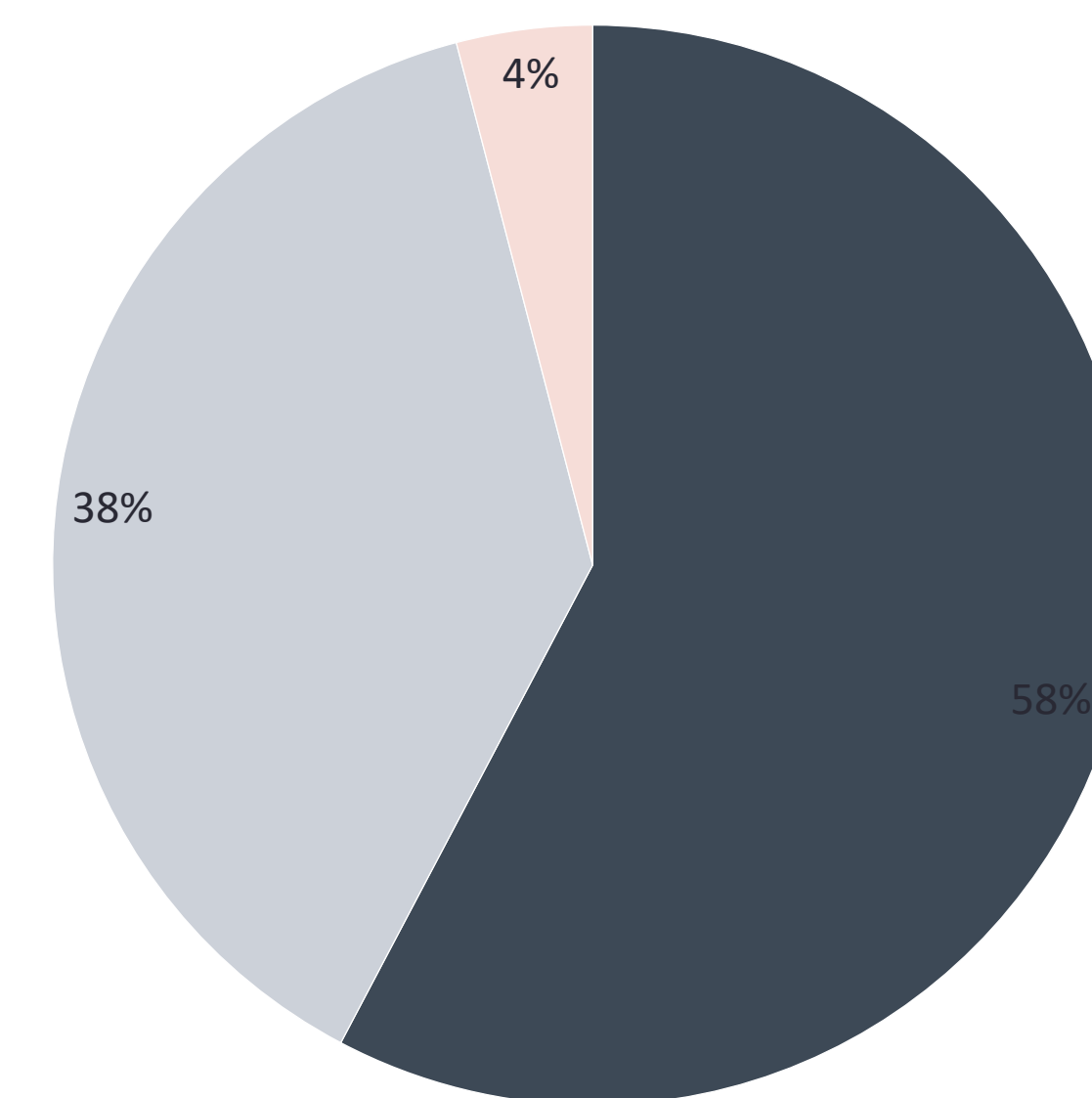- **Pathophysiology:**
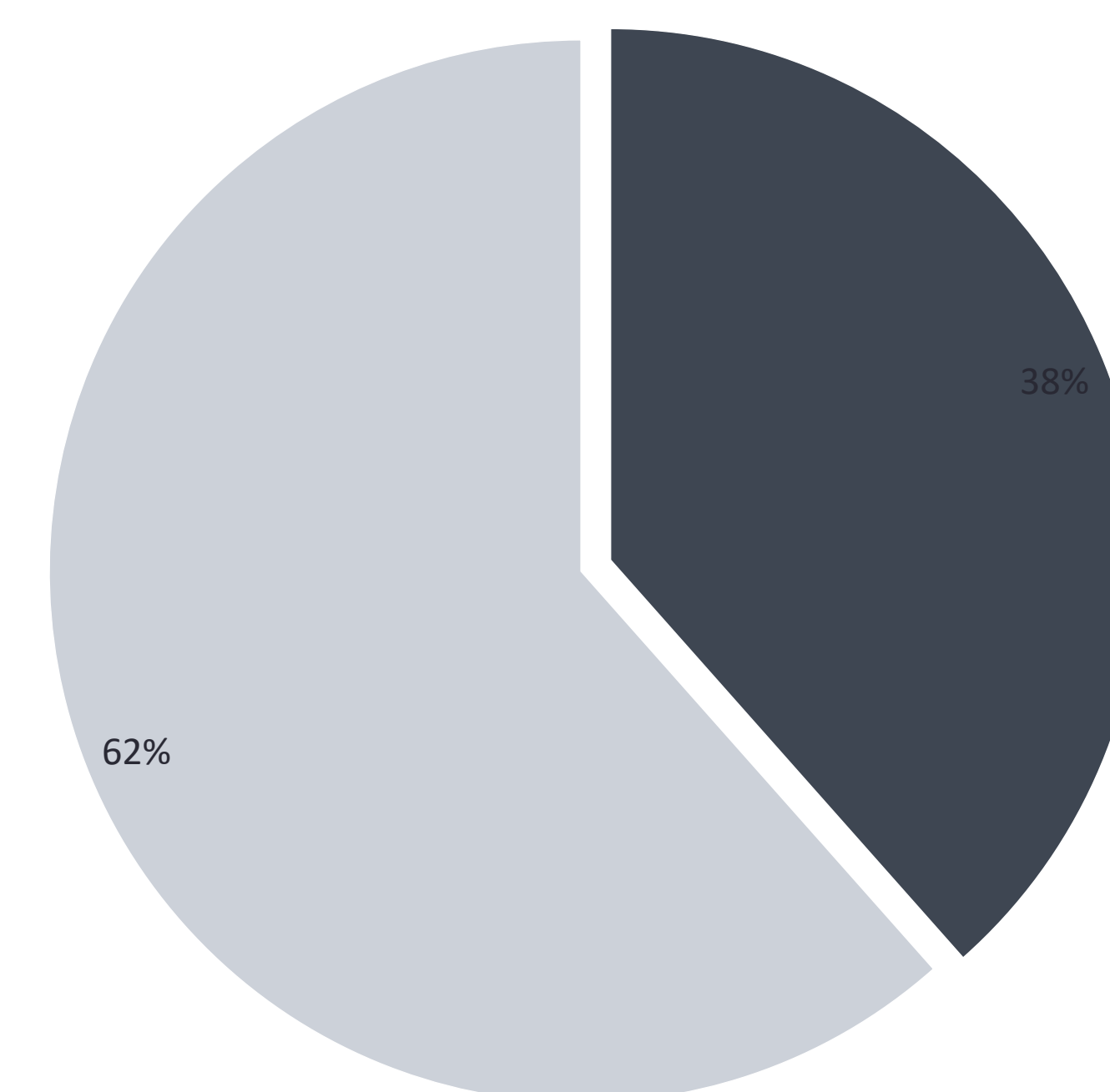 It is not fully understood butthe following factors are important:
    1- Metabolic alteration:
    2- Hemodynamic alteration:
     3- Genetic factors:[4]

RESULTS:

■ **Normal** ■ **Microalbuminuria** ■ **Macroalbuminuria**

4%
38%
58%

■ **Proteinuria without good control**
■ **Proteinuri with good control**

38%
62%

■ **Hypertension with proteinuria**
■ **Hypertension without proteinuria**

DISCUSSION:

- The earliest clinical evidence of nephropathy is the appearance of low but abnormal levels (≥ 30 mg/day or 20 µg/min) of albumin in the urine, referred to as microalbuminuria, and patients with microalbuminuria are referred to as having incipient nephropathy[5] . In my study, about 58% of all diabetic patients (123) were normal, 38% with microalbuminuria and 4% with macroalbuminuria and those with macroalbuminuria were +ve for hypertension.
- Glycated hemoglobin (HbA_{1c}) is a continuous marker of glycemia. Epidemiologic studies have demonstrated that DN risk is higher in patients with poor metabolic control.[6] And in my study about 38.5% (20 0f whole number that has albuminuria) were poorly glycemic control.
- In patients with type 1 diabetes, hypertension is usually caused by underlying diabetic nephropathy and typically becomes manifest about the time that patients develop microalbuminuria. In patients with type 2 diabetes, hypertension is present at the time of diagnosis of diabetes in about one-third of patients[5].
- Of all patients, 45 were hypertensive (36.6%) and 78 were not (63.4%). And 50% of all hypertensive patients are with albuminuria.

CONCLUSION:

- Nephropathy is a very common complication of Diabetes Mellitus according to my study and other Libyan and international studies.
- The cause of nephropathy is not well recognized but there are some factors that increase the risk of the development such as poor control, hypertension, dyslipidemia, and smoking.

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