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# STUDY OF SOME TUBULAR MARKERS IN DIABETIC NEPHROPATHY

#### **THESIS**

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## INTRODUCTION

## **Diabetes Mellitus**

Diabetes mellitus is a metabolic disease characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. The chronic hyperglycemia of diabetes is associated with long term damage, dysfunction, and failure of various organs, especially the eyes, kidneys, nerves, heart and blood vessels.<sup>(1)</sup>

Several pathogenic processes are involved in the development of diabetes. These range from autoimmune destruction of the β-cells of the pancreas with consequent insulin deficiency to abnormalities that result in resistance to insulin action: The basis of abnormalities in carbohydrate, fat and protein metabolism in diabetes is deficient insulin action on target tissues. Deficient insulin action results from inadequate insulin secretion and or diminished tissue response to insulin at one or more points in the complex pathways of hormone action. Impairment of insulin secretion and defects in insulin action frequently coexist in the same patient, and it is often unclear which abnormality, if either alone, is the primary cause of the hyperglycemia. (2)

Symptoms of marked hyperglycemia include polyuria, polydipsia, weight loss, sometimes with polyphagia, and blurred vision. Impairment of growth and susceptibility to certain infections may also accompany chronic hyperglycemia. Acute, life-threatening consequences of diabetes are

hyperglycemia with ketoacidosis or the non-ketotic hyperosmolar syndrome.

Long-term complications of diabetes include:

Retinopathy with potential loss of vision, nephropathy leading to renal failure, peripheral neuropathy with risk of foot ulcers, amputation, and charcot joints, autonomic neuropathy causing gastrointestinal, genitourinary, cardiovascular symptoms and sexual dysfunction. Patients with diabetes have an increased incidence of atherosclerotic cardiovascular, peripheral vascular and cerebrovascular diseases.<sup>(3)</sup>