

# Levels of Micro Albuminuria and Triglycerides in Type 2 Diabetes Mellitus

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**Abstract:** *Experimental and clinical studies have shown a strong association between hypertriglyceridemia and diabetic nephropathy. High triglyceride variability affects the microalbuminuria*

**Keywords:** Microalbuminuria, Type 2 diabetes mellitus, Triglycerides, IDDM, TG

## 1. Introduction

Diabetes mellitus is a chronic disease due to disorder of carbohydrate metabolism and it is a common disease of human. The disease is inherited as an autosomal recessive trait. The cause of diabetes mellitus, is due to deficiency or diminished effectiveness of insulin, resulting hypoglycemia, glycosuria and disturbances of carbohydrate, fat and protein metabolism associated with absolute or relative deficiency in insulin secretion and/or insulin action. The two main types of diabetes are type I or Insulin Dependent Diabetes Mellitus (IDDM) and type II or Non - Insulin Dependent Diabetes Mellitus (NIDDM). Complication of type 1 and type 2 diabetes caused by damage to the kidney's delicate filtering system. Due to damage to kidney's filtering system, it is characterized by micro albuminuria. Micro albuminuria is also called minimal albuminuria, an early indication of nephropathy in patients with diabetes mellitus and hypertension. All patients who are known diabetes and hypertensive should be screened for micro albuminuria which is expressed as albumin - creatinine ratio. Normal ratio is Males: <23mg/g of creatinine, Females: < 32mg/g of creatinine. In Microalbuminuria, albumin excretion rate is 30 - 300mg/day or albumin to creatinine ratio (mg/mmol) 2.5 to 25 in males and 3.5 to 35 in females. Patients showing higher values more than one occasion is considered to have micro albuminuria. Triglycerides are fat molecule that make up most of our body fat and fat found in food. Elevated levels of triglyceride is known as hypertriglyceridemia. In type 2 diabetes mellitus the level of triglyceride is high

## 2. Methods

Blood sample was drawn after overnight fasting for the measurement of fasting blood glucose and triglyceride. Fasting blood glucose and triglyceride levels were determined by enzymatic methods. Urine sample were collected for the diagnosis of microalbuminuria by measuring the ratio of urinary albumin to creatinine. .

### 1) Inclusion Criteria

- Known cases of type 2 diabetes mellitus.
- Age between 35 - 60 year.

### 2) Exclusion Criteria

- Patient with type 1 diabetes mellitus.
- Patient with insulin therapy.
- Pregnancy

## 3. Result

A total of 200 subjects were included in the study, among them 100 were diagnosed as Type II diabetes mellitus patients, 100 were healthy subjects.

### Statistical analysis

In diabetes patients, the mean fasting blood sugar levels were  $160.5 \pm 46.5$  mg/dL and in healthy subjects, blood sugar level is  $86.11 \pm 2.23$  mg/dL. In diabetes patients, the mean serum triglyceride levels were  $219.8 \pm 88.5$  mg/dL and in healthy subjects, blood triglyceride level is  $107 \pm 18.89$  mg/dL. Urine microalbumin levels in diabetes patients is  $65.9 \pm 34.9$ .

**Table 1:** Diabetic Patients (100 Samples)

Parameters	Abnormal	Normal
Microalbuminuria	96	04
Triglyceride	95	05

The mean serum TG in diabetes cases were significantly higher than control. Increased level of TG in diabetes may be due to diminished activity of hepatic lipase and lipoprotein lipase which will clear the TG from circulation. elevated TG levels predict incident microalbuminuria.

## 4. Conclusion

In Type II diabetic patients, microalbuminuria is the earliest clinical sign indicating vascular damage in the glomerulus. In the study we conclude, significant rise in the levels of micro albuminuria and triglyceride was observed in type - 2 diabetes. mellitus cases.

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