Frequency of Microalbuminuria in Newly Diagnosed Type 2 Diabetics at Nishtar Hospital, Multan

N J KHAN M I FARID S HAMEED *M AZIZ*
Department of Medicine, Nishtar Medical College/Hospital, Multan
Correspondence to Dr. Nasir Jamal Khan Gopang, Senior Registrar

Objectives: to describe frequency of microalbuminuria in newly diagnosed Type 2 Diabetics.
Study Design: Descriptive and cross-sectional study. 50 indoor and outdoor newly diagnosed type 2 diabetics were screened for microalbuminuria. **Setting:** Medical Unit III of Nishtar Hospital Multan. **Material And Methods:** Both males and females with newly diagnosed type 2 diabetics were included in the study while Presence of overt proteinuria on routine urine analysis, Patients with evidence of congestive cardiac failure, urinary tract infection, and chronic obstructive pulmonary disease and Pregnant diabetics were excluded from the study. A detailed history was taken from every patient and meticulous clinical examination performed on each of them. Diabetes mellitus was confirmed by fasting and random hyperglycemia. Routine investigations like complete blood examination, complete urine examination serum urea, creatinine, X-ray chest, ECG, were obtained for each patient. Micral test (Boehringer Manhhem) was used for detection of microalbuminuria. **Results:** Average age of the patients was 45 years. 41 patients were males and 9 were females. 30 % of these patients were found to be microalbuminuric. Both fasting blood sugar and random blood sugar levels were impaired in microalbuminurics. 38 % of the total patients were smokers and 24 % were hypertensives. Ischemic heart disease was found in 14 % of patients on ECG where as LVH (Left Ventricular Hypertrophy) was evident in 4 % of the patients. Renal parameters and Chest X-rays of all the patients were normal. None of them had CVA (Cerebrovascular Accident). **Conclusion** This study has documented higher frequency rate of microalbuminuria in newly diagnosed type 2 diabetics in our society. Poor glycemic control and delay in the diagnosis of diabetes mellitus were factors in the development of early diabetic nephropathy. Screening for early detection of diabetes mellitus is recommended.
Key Words: Microalbuminuria, CVA (Cerebrovascular Accident), proteinuria

Diabetes is one of the leading causes of morbidity & mortality. The Eyes, Brain, Heart & the Kidneys are amongst the chief organs affected. In our country Diabetes Mellitus causes a significant burden of disease. The incidence of type 1 diabetes a pace to be increasing in most population. In Europe the annual increase is of the order of 3-4%, and is most marked in children under the age of 5 years [1]. Sedentary lifestyle leading to obesity a risk factor for type 2 diabetes will create a huge public health problem for the future [2].

In this study we are concerned with renal involvement in type 2 diabetics. In type 2 diabetes, unlike type 1 diabetes, environmental factors play major role [3]. The incidence and prevalence of end stage renal failure from renal involvement in-patients with type 2 diabetes has recently increased in the western world and in Asia. The reason for recent increase in the frequency of nephropathy in type 2 diabetes [4] include (i) an increasing prevalence of type 2 diabetes (ii) aging of the population (iii) improved survival of patients with type 2 diabetes. Today patients live longer with type 2 diabetes to experience diabetic nephropathy. The renal risk in diabetes is associated with overt or covert albuminuria. Microalbuminuria precedes overt proteinuria by several years, a potentially reversible state. Recently importance of microalbuminuria has been raised, because its appearance in diabetics predicts development of macro-albuminuria and coronary artery disease.

Material & Methods:
This study was conducted in ward. No. 7 (unit III) of Nishtar Hospital Multan. Medical Unit III provides out patients care and professional advice to the diabetic patients registered here. Regular follow-up and complete record of patients is maintained here. In this study 50 newly diagnosed type 2 diabetics were included.
Inclusion Criteria: Newly diagnosed type 2 diabetics Both males and females were included in the study.
Exclusion Criteria: Presence of overt proteinuria on routine urine analysis, Patients with evidence of congestive cardiac failure, urinary tract infection, and chronic obstructive pulmonary disease and pregnant diabetics were also excluded from the study.
History, Clinical Examination & Laboratory Investigations: A detailed history was taken from every patient and meticulous clinical examination performed on each of them. Diabetes mellitus was confirmed by fasting and random hyperglycemia. Routine investigations like complete blood examination, complete urine examination, X-ray chest, ECG, were obtained for each patient. Renal status was determined by measurement of serum urea, creatinine. Patients were asked to bring morning sample of urine for determination of microalbuminuria.
Detection of Microalbuminuria: Micral test (Boehringer Manhhem) was used for detection of microalbuminuria. Micral test stick is a semi-quantitative test in which color reaction is mediated by an anti body bound enzyme.

Micral test strip is dipped in urine for five seconds up to the blue area mark on test strip. Strip is not touched with the vessel wall, as it will result in un-even chromatograhpy as well as loss of anti bodies.

Results

In my study total 50 newly diagnosed type 2 diabetic were included. Average age of the patients was 45 years. 41 patients were males and 9 were females. 30 % of these patients were found to be microalbuminuric (Table 1). Both fasting blood sugar and random blood sugar levels were impaired in microalbuminurics (Table 2,3). 38 % of the total patients were smokers and 24 % were hypertensives. Ischemic heart disease was found in 14 % of patients on ECG where as LVH (Left Ventricular Hypertrophy) was evident in 4 % of the patients (Table 4). Renal parameters and Chest X-rays of all the patients were normal. None of them had CVA (Cerebrovascular Accident).

Table 1: Microalbuminuria in patients.

	Frequency	%age
Present	15	30
Absent	35	70
Total	50	100

Table 2: Fasting blood glucose levels (mg/dl)

	Frequency	%age
<110	35	70.0
>130	15	30.0
Total	50	100.0

Table 3: Random blood sugar level (mg/dl).

Sugar levels (mg/dl)	Frequency	%age
<180	35	70
>200	15	30
Total	50	100

Table 4: Cardiac disease

	Frequency	%age
None	42	84.0
IHD	6	12.0
LVH	2	4.0
Total	50	100.0

Discussion:

The primary aim of this study was to determine the frequency of microalbuminuria in patients suffering from type 2 diabetes mellitus. In my study overall rate of frequency of microalbuminuria is 30 %. In a study conducted by Luetscher JA, Kraemer FB, 20 % patients were found to be having microalbuminuria[5] . In another study conducted in Unit for Metabolic Medicine, Guy's Hospital, London it was concluded that the frequency of microalbuminuria in Indian patients was significantly higher as compared with European patients[6]. Most probably multiple factors are responsible for this higher rate such as Geographical, racial, socioeconomic differences.

Glycemic control is one of the most significant factors in causation of microalbuminuria. In my study all positive subjects had impaired glycemic control. Role of poor glycemic control is a recognized factor in causation of early diabetic nephropathy.

Another factor, which could explain this higher frequency, is late diagnosis of diabetes mellitus. It is an open secret that in our society most of our patients seek medical advice very late. Initially they entertain different modalities of treatment, most of them are unscientific and unethical. This delay in diagnosis and management of diabetes mellitus results in early diabetic nephropathy. This is well accepted that duration of diabetes is a significant risk factor for microalbuminuria.

Glycemic control of patients with microalbuminuria was markedly deranged. Nearly all exhibited fasting as well as random hyperglycemic. It is now well-known fact that increases in frequency of microalbuminuria has almost linear association with glycemic control in patients with diabetes mellitus[7].

Conclusion:

This study has documented higher frequency rate of microalbuminuria in newly diagnosed type 2 diabetics in our society. Poor glycemic control and delay in the diagnosis of diabetes mellitus were factors in the development of early diabetic nephropathy. Screening for early detection of diabetes mellitus is recommended.

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