

SIGNIFICANCE OF MICROALBUMINURIA AT DIAGNOSIS OF TYPE 2 DIABETES

Vijay Viswanathan, Seena R, Lalitha S, Snehalata C, Jayaraman Muthu, Ramachandran A*

INTRODUCTION

It is not uncommon to find evidence of microvascular complications of diabetes in newly diagnosed NIDDM (Type 2) diabetic patients. Proteinuria has been reported in upto 50% of patients with Type 2 diabetes[1] and in many patients it is seen soon after diagnosis[1,2]. The presence of microalbuminuria which is detected at the time of diagnosis of NIDDM has been attributed to the hyperglycaemia itself and may reverse to normoalbuminuria after adequate glycaemic control. However, microalbuminuria, particularly if it is persistent may also represent incipient nephropathy.

The aim of the present study was to assess the prevalence of present microalbuminuria at diagnosis of Type 2 diabetic patients and to also determine the association of microalbuminuria with other clinical parameters.

PATIENTS AND METHODS

The prevalence of microalbuminuria was assessed in 205 (M:F,126:79) consecutive newly diagnosed NIDDM patients with a mean age of 45 ± 9 years. Microalbuminuria was estimated by measuring urine albumin : creatinine ratio in an early morning urine sample on two occasions : during the first visit and again one month later after achieving good glycaemic control. Other clinical parameters like blood pressure, Body Mass Index (BMI), ECG and biochemical tests like HbA1 and lipids were done (Table 1).

Table 1

Comparison of patients with persistent microalbuminuria (MAU) and normoalbuminuria (NAU)

	MAU	NAU	P Value
Number	25	157	
Age Years	47 ± 8.7	44 ± 8.7	NS
HbA1%	10.5 ± 0.97	11.2 ± 1.4	NS
BMI (kg/m ²)	26 ± 4.0	26.5 ± 4.0	NS

‘t’ test

RESULTS

Microalbuminuria was present in 44 patients (21%) while clinical proteinuria was present in 4 patients (2%). 19/44 patients (43%) with microalbuminuria became normoalbuminuric on the 2nd visit while among the proteinuric subjects, 2/4 patients became normoalbuminuric. Therefore microalbuminuria persisted in 12.2% of patients and proteinuria in 0.9% after control of diabetes.

Hypertension was more prevalent among the patients with microalbuminuria than in patients with normoalbuminuria (Table 2). ECG abnormalities of Ischaemic heart disease were slightly higher, but not statistically significant in patients with microalbuminuria than in those with normoalbuminuria (Table 2). Similarly, hyperlipidaemia, especially increased cholesterol values, were significantly higher in microalbuminuric than in normoalbuminuria cases (Table 2).

Table 2
Comparison of patients with persistent microalbuminuria (MAU) and normoalbuminuria (NAU)

	MAU n %	NAU n %	X ² p value
Hypertension	14 56	50 32	4.5 0.033*
ECG abnormal	5 20	21 13	0.33 0.57
Increased cholesterol	14 56	42 27	7.34 0.007*
Increased triglycerides	13 53	57 36	1.63 0.2

*Significant

The prevalence of hypertension was 35% among the newly diagnosed NIDDM subjects. In 64% of them hypertension was detected before the diagnosis of NIDDM. Among the hypertensives 14/72 (19%) has persistent microalbuminuria while among the normotensives 11/133 (8%) has persistent microalbuminuria ($\chi^2 - 4.45$, $P = 0.035$) Table 3). Persistent proteinuria was present in 2/72 (3%) among the hypertensives and in none among the normotensives.

* Diabetes Research Centre, Chennai, India.

Table 3
Microalbuminuria and Proteinuria among hypertensives

	Persistent Microalbuminuria	Persistent Proteinuria
Hypertensive patients	14/72 (19%)	2/72 (3%)
Normotensive patients	11/33 (8%)	None

Significance $X^2 = 4.45$, $P = 0.35$

CONCLUSIONS

The prevalence of persistent microalbuminuria at diagnosis of NIDDM was 12.2%. As shown in Table 4, majority of the studies have shown microalbuminuria in 19 to 20 % of the newly diagnosed NIDDM. Persistent microalbuminuria has been recorded only in two studies other than the present one. Patients with persistent microalbuminuria had significantly higher blood pressure levels and cholesterol levels than normoalbuminurics. Conversely, NIDDM subjects with hypertension has significantly higher prevalence of microalbuminuria.

Table 4
Prevalence of Microalbuminuria at diagnosis of Type 2 Diabetes

Author	Number of patients	Method	Prevalence (%)	
			At initial presentation	At follow up
Patrick et al [3]	149	ACR	26	16
Niskanen [4]	133	AER	19	20
Vora [5]	110	AER	7	-
Olivarius [6]	1267	ACR	33.6/28.8 (M : F)	-
Yajnik et al [7]	1146	AER	23	-
Vijay et al [1997]	205	ACR	21	12.2

ACR : Albumin / Creatinine Ratio
AER : Albumin Excretion Rate.

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