

## Microalbuminuria: A marker for cardiovascular risk in hypertensive patients

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### ABSTRACT

Hypertension is one of the most common diseases of the modern world. In hypertensive patients, Microalbuminuria, defined as albumin excretion rate (AER) of 30-300 mg/ day or 30 – 299 mg/ gm of creatinine, acts as a specific marker to detect early arterial disease & renal damage. Detection of microalbuminuria in hypertensive patients and their treatment can significantly alter the disease progression.

**Key words:** Microalbuminuria, cardiovascular risk, hypertension

Sir,  
Hypertension is one of the most important public health problems in the world- being common, readily detectable & usually treatable. Hypertension is known as a “silent killer”, being asymptomatic in early stages, even when it progressively damages multiple organ systems. As a result, unless diagnosed and treated in the early stages, it is associated with increased risk for target organ damage, leading to complications like atherosclerosis, coronary artery disease, nephropathy, retinopathy and cerebrovascular accidents.

The cost effectiveness of BP reduction using drug therapy is greater in the presence of target organ abnormalities and/or co-morbidities. Hence it would be more prudent to assess subclinical target organ damage while evaluating hypertensive patients. One such biomarker related to early arterial

disease and renal damage is microalbuminuria, which is defined as abnormally elevated urinary albumin excretion below the level of clinical albuminuria and hence undetected by dipstick. It represents albumin excretion rate (AER) of 30-300 mg/ day or 30 – 299 mg/ gm of creatinine. <sup>[1]</sup> It can only be detected by ultrasensitive methods like radioimmunoassay, enzyme-linked immunosorbent assay, immunonephelometry or immunoturbidimetry. Microalbuminuria is assessed by urinary albumin : creatinine ratio (ACR) in the early morning urine sample of the patient, based on recommendations of National Kidney Foundation & American Diabetes Association.

Microalbuminuria has been reported to occur in 15-40% of patients with established essential hypertension. Prevalence of an elevated Urinary

Albumin Excretion (UAE) increases with age, with longer duration and a greater severity of hypertension. [2] Hypertensive target organ damage in the form of Left Ventricular Hypertrophy (LVH), subclinical impairment of left ventricular function, hypertensive retinopathy & stroke are more commonly seen in microalbuminuric patients. Microalbuminuria is one of the earliest indicators of Chronic Kidney Disease in patients with diabetes mellitus & hypertension. These factors indicate that microalbuminuria is a specific marker of cardiovascular risk & target organ damage in essential hypertension. It acts as a simple, cost effective tool for identifying patients at higher global risk. [3]

Drugs like Angiotensin Converting Enzyme inhibitors & Angiotensin Receptor blockers significantly improve BP control & decrease microalbuminuria in diabetic & non diabetic hypertensive patients. [4]

The growing awareness of the significance of microalbuminuria in CVD is an important and positive step towards utilizing this emerging risk marker in the therapeutic decision-making process. The evidence from large clinical trials attests not only to the renal but the cardioprotective effects of early recognition and reduction of microalbuminuria. But perhaps most importantly, the right tools exist to effectively treat patients who present with this early marker for CVD, thus reducing their CVD risk.

Therefore all hypertensive patients should be periodically checked for microalbuminuria. Early control of BP by life-style modification & usage of drugs that interfere with Renin-Angiotensin system may go a long way in preventing End Stage Renal Disease and reduce the disease burden related to severe Chronic

Kidney Disease & Cardiovascular diseases in the community.

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