

Urinary NAG, AAP and Microalbuminuria as Indicators of Hypertensive Disease

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Abstract. In the current study certain kidney biochemical markers were measured in the urine of Saudi patients suffering from diabetes mellitus.

Two enzyme markers, N-acetyl- β -D-glucosaminidase (NAG), a lysosomal enzyme in the catalysis of glycoprotein and alanine amino-peptidase (AAP) a brush border enzyme of the proximal tubules involved in amino acid metabolism, have been reported to be sensitive indicators of renal damage.

The established marker, microalbuminuria was also measured, as it is productive of overt nephropathy and renal diseases.

The results showed that in diabetes mellitus high levels of urinary NAG activity were associated with high microalbuminuria and elevated AAP levels; NAG activity was high in the normotensive IDDM patients. Microalbuminuria was higher in hypertensive patients than in normotensive patients. In hypertensive patients lower total protein values were associated with IDDM but not with NIDDM.

NAG assay, AAP and microalbuminuria may be useful markers for early detection of kidney damage and as an alternative measurements for renal dysfunction, although they may not be useful in diagnosing late stage of kidney failure.

Keywords: Diabetic Nephropathy, Urinary N-acetyl- β -D-glucosaminidase, Alanine Amino Peptidase, Microalbuminuria Hypertension, Insulin Dependent Diabetes (IDDM), Non-insulin Dependent Diabetes (NIDDM).