Albumin measurements in a random urine sample accurately screened microalbuminuria and macroalbuminuria in NIDDM


Objective
To assess the accuracy of urinary albumin concentration (UAC) and urinary albumin-to-creatinine ratio (UACR) in a random urine sample (RUS) as a screening test for microalbuminuria and macroalbuminuria in patients with non-insulin-dependent diabetes mellitus (NIDDM).

Design
Comparison of UAC and UACR with 24-hour urinary albumin excretion rate (UAER) using receiver-operating characteristics (ROC) curves.

Setting
Diabetes clinic in a tertiary care center in Brazil.

Patients
95 patients (mean age 61 y, 52% women) who had NIDDM (mean duration 11 y). Exclusion criteria were cardiac failure or renal tract disease other than diabetic nephropathy.

Main results
The areas under the curve for microalbuminuria were 0.98 for UAC and 0.97 for UACR; for macroalbuminuria the areas were 0.99 for UAC and 0.96 for UACR. The UAC and UACR areas for microalbuminuria and macroalbuminuria did not differ (P > 0.05). A UAC value of 16.9 mg/L and a UACR value of 15.0 mg/g were 100% sensitive for microalbuminuria; for macroalbuminuria a UAC value of 174.0 mg/L and a UACR value of 116.0 mg/g were 100% sensitive. Greater than 88% sensitivity and specificity for microalbuminuria were achieved with UAC and UACR values of 33.6 mg/L and 26.8 mg/g, respectively; greater than 90% sensitivity and specificity for macroalbuminuria were achieved with UAC and UACR values of 296.2 mg/L, and 334.3 mg/g, respectively.

Conclusion
Measures of urinary albumin concentration and urinary albumin-to-creatinine ratio in a random urine sample were sound screening tests for microalbuminuria and macroalbuminuria in patients with non-insulin-dependent diabetes mellitus.

Reference