

Evaluation of a Rapid Screening Test for Microalbuminuria with a Spot Measurement of Urine Albumin-Creatinine Ratio

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Abstract

Introduction: Microalbuminuria has been established as a marker of incipient diabetic nephropathy, and a regular screening programme has been advocated in patients with diabetes mellitus. We investigated if urine albumin levels normalised by creatinine give results comparable to the urinary albumin excretion rate (UAER) with a timed 24-h urine for detecting microalbuminuria. **Materials and Methods:** Morning urine specimens and 24-h collections were obtained from 65 diabetic patients. Albumin and creatinine levels in the spot urine specimens were measured in a single rapid (7 min) assay format using the Bayer DCA2000+™ desktop system. Results of albumin/creatinine ratio and urine albumin concentration were then compared to the reference laboratory method of measuring UAER with the timed 24-h urine sample. **Results:** The determination of the albumin/creatinine ratio gave good performance characteristics for diagnosis of microalbuminuria (defined as >30 mg/g creatinine) with sensitivity of 71.4% and specificity of 98.0%. With urine albumin concentration alone, sensitivity was 64.3% and specificity was 96.1%. Receiver operating characteristic (ROC) curves, however, suggest similar diagnostic usefulness for screening microalbuminuria with albumin levels expressed in concentration units or as a ratio of creatinine compared to the reference method. Analysis also indicated that lowering the established cut-off values in general, improves diagnostic performance. **Conclusions:** Measurement of microalbuminuria with a spot morning specimen using the DCA2000+™ desktop system that simultaneously measures albumin and creatinine levels, provides a rapid and reliable method for incipient diabetic nephropathy in clinical practice.

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