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Which Specimen to Screen for Microalbuminuria

To the Editor:

Recently Howey et al. (Clin Chem 1987;33:2034-8) advocated measurement of the albumin concentration in the first morning urine specimen, with a cutoff value of 30 μg/mL, to screen for pathologically increased albumin excretion by diabetic subjects. They stated that correction of this figure for creatinine concentration, or for time and volume, did not improve the intra-individual variability of albumin excretion or the predictive value of the albumin test.

We would challenge these suggestions on the following grounds:

- Their data were obtained in a small sample (n = 11) of non-diabetic individuals.
- It may not be correct to extrapolate from a non-diabetic population to provide a screening protocol for diabetic patients. For instance, changes in glycoemic control in diabetics during the night may affect urine flow rate, which will alter albumin excretion to a different extent than in normals.
- Several workers have demonstrated that the validity of urine albumin concentration alone is less than that of the albumin/creatinine ratio (ACR) in predicting microalbuminuria in samples from recumbent or ambulatory subjects (1-3). This would be expected under conditions in which urine flow rate underwent changes throughout the day.
- As others (3, 4) have shown, the ACR in an un timed specimen collected in the clinic shows a greater than 90% correlation with timed overnight albumin excretion rate (AER). Moreover, ACR, or AER in morning samples, random daytime samples, or 24-h samples calculated from the sum of overnight, morning, and remaining daytime samples, all predict an overnight AER >12 μg/min better than does the corresponding uncorrected albumin concentration; these unpublished results were obtained for diabetic subjects.

We would therefore suggest that the clinical strategy suggested by Howey et al. is unnecessarily restrictive and may be lacking in sensitivity and specificity, particularly when applied to diabetic subjects. Present evidence indicates that better sensitivity and specificity in the detection of early increases in albumin excretion in diabetics will be achieved by correcting urine albumin concentration for either creatinine concentration or time and volume, and there is little to choose between different times to carry out urine collections for this purpose.

References


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The authors of the paper in question respond:

To the Editor:

We thank Rowe and colleagues for their comments and wish to make the following points in reply.

Contrary to their claim, we made no statement on the relative predictive value of differing reporting formats for the albumin test. Ideally, such a screening test for important treatable disease should have 100% nosological sensitivity, with subsequent identification of false positives by repeat testing or by performing an alternative test with different nosological characteris-