



Detection of Microalbuminuria

The 24-hour urine collection remains the gold standard for the detection of microalbuminuria, but screening may be performed with a timed urine collection or a random early morning or afternoon specimen.

Microalbuminuria is unlikely if the albumin excretion rate is less than 20 $\mu\text{g}/\text{min}$ in a timed collection or the urine albumin concentration is less than 20 to 30 mg/L in a random specimen. Values greater than these may represent false-positive results and need to be confirmed by a 24-hour urine collection or by repeat morning specimens.

Measuring the urine albumin concentration alone is subject to false-positive and false-negative results since the urine volume influences the albumin concentration. This problem can be overcome by calculation of the albumin-to-creatinine ratio.

The albumin-to-creatinine ratio is performed on a random urine specimen. A value above 30 mg/g (or 0.03 mg/mg) suggests that albumin excretion is above 30 mg/day and therefore microalbuminuria is probably present.

The reliability of the various tests to measure microalbumin is affected by two important conditions:

- Vigorous exercise can cause a transient increase in albumin excretion. Therefore, patients should refrain from vigorous exercise prior to the test.
- The relationship between the spot urine and the 24-hour collection varies throughout the day. The correlation is best with mid-morning and mid-afternoon samples.

Reference

Mogensen CE, Vestbo E, Poulsen PL, et al. Microalbuminuria and potential confounders. A review and some observations on variability of urinary albumin excretion. *Diabetes Care* 1995; 18:572-581.