

Urine Albumin/ Creatinine Ratio Test

Microalbumin testing for diabetes mellitus

INTRODUCTION

The microalbumin test is a sensitive and accurate test which is performed to identify any abnormal amounts of albumin in urine. The term “microalbumin” refers not to the size of the protein molecule but to the low concentration which is measured.

This urinary test plays a central role in assessing and monitoring the effectiveness of diabetic control and the progression of tissue damage. The end result of tissue damage is the catastrophic small and large vessel damage so characteristic of older, poorly controlled patients with diabetes mellitus.

We currently measure the trace amount of albumin found in the urine of the patient with early diabetes, comparing the amount not only with normal levels but also if elevated, with previous levels noted in that patient.

The detection of early diabetic nephropathy signals the risk of similar changes in other tissues. These changes may be reversible with improvement of glycaemic management and the considered addition of an ACE inhibitor to management.

ABOUT THE TEST

There are several options available when testing for urinary albumin loss.

A timed 24 hour collection is the “gold standard” but is inconvenient to the patient and is prone to error resulting from overcollection (inadvertent inclusion of both overnight samples) and incomplete collection.

A timed overnight collection is essentially just as useful diagnostically and avoids the problem of extra or missed samples. The patient empties the bladder prior to going to bed and then collects the morning sample, noting the time of the collection and the time since the previous sample was passed.

RACGP's *General practice management of type 2 diabetes: 2016-18 guidelines* recommend that urine albumin/creatinine ratio (UACR) test be performed on a first morning void specimen. If this is not possible, a random urine specimen is acceptable. This is useful if the test is being performed relatively frequently – the albumin/creatinine ratio which form part of this report can be compared directly with previous random and timed collections, and if there appears to be an unexplained change, the patient may be asked to repeat the test with a timed collection.

TEST RESULTS

Definitions of microalbuminuria and macroalbuminuria*

| | Sex | Microalbuminuria | Macroalbuminuria |
|----------------------|--------|------------------|------------------|
| UACR | Men | 2.5 – 25mg/mmol | > 25mg/mmol |
| | Women | 3.5 – 35mg/mmol | > 35mg/mmol |
| 24-h urinary albumin | Either | 30 – 300mg/day | > 300mg/day |

UACR = urinary albumin-to-creatinine ratio.

TEST INDICATIONS

It is recommended that the test should be performed in type 1 diabetes five years after diagnosis and at least annually thereafter. Recommended testing in type 2 diabetes is annually from the time of the diagnosis.

If a value is unexpectedly found to be raised, it is important to assess the patient's health status; urinary tract infections, collection after exercise, haematuria etc. may cause an elevation of the urinary albumin which is unrelated to diabetes. If a value is confirmed as raised, two additional assessments within twelve weeks should be performed.

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HOW TO ORDER

The test may be requested as:

urinary microalbumin – random;
urinary microalbumin – timed overnight; or
urinary microalbumin – 24-hour collection.

TURNAROUND TIME

Tests are performed Mon–Fri with results available the next day.

COST

This test is bulk billed subject to Medicare guidelines and criteria. If Medicare guidelines and criteria are not met, an out-of-pocket fee may apply.

FURTHER INFORMATION

For further information please contact your Medical Liaison Officer.

*Johnson et al., Chronic kidney disease and measurement of albuminuria or proteinuria: a position statement., Med J Aust 2012;197(4):224-225.

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