Test Definition: RCTUR

Creatinine, Random, Urine

Overview

Useful For

Calculation of creatinine clearance, a measure of renal function, when used in conjunction with serum creatinine

Normalization of urinary analytes by creatinine concentration to account for the variation in urinary concentrations between subjects

Method Name

Colorimetric

NY State Available

Yes

Specimen

Specimen Type

Urine

Specimen Required

Supplies: Urine Tubes, 10 mL (T068)
Container/Tube: Plastic, 10-mL urine tube
Specimen Volume: 6 mL
Collection Instructions:
1. Collect a random urine specimen.
2. No preservative.

Forms

If not ordering electronically, complete, print, and send 1 of the following forms with the specimen:
-Kidney Transplant Test Request
-Renal Diagnostics Test Request (T830)

Specimen Minimum Volume

1 mL

Reject Due To

All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Urine	Refrigerated (preferred)	30 days	
	Ambient	14 days	
	Frozen	30 days	

Clinical & Interpretive

Clinical Information

Creatinine is formed from the metabolism of creatine and phosphocreatine, both of which are principally found in muscle. Thus, the amount of creatinine produced is, in large part, dependent upon the individual's muscle mass and tends not to fluctuate much from day-to-day.

Creatinine is not protein bound and is freely filtered by glomeruli. All of the filtered creatinine is excreted in the urine. Renal tubular secretion of creatinine also contributes to a small proportion of excreted creatinine. Although most excreted creatinine is derived from an individual's muscle, dietary protein intake, particularly of cooked meat, can contribute to urinary creatinine levels.

The renal clearance of creatinine provides an estimate of glomerular filtration rate. Since creatinine, for the most part, in the urine only comes from filtration, the concentration of creatinine reflects overall urinary concentration. Therefore, creatinine can be used to normalize other analytes in a random urine specimen.

Reference Values

> or =18 years old: 16-326 mg/dL

Reference values have not been established for patients who are <18 years of age.

Interpretation

Decreased creatinine clearance indicates decreased glomerular filtration rate. This can be due to conditions such as progressive renal disease, or result from adverse effects on renal hemodynamics, which are often reversible including certain drugs or from decreases in effective renal perfusion (eg, volume depletion or heart failure).

Increased creatinine clearance is often referred to as "hyperfiltration" and is most commonly seen during pregnancy or in patients with diabetes mellitus before diabetic nephropathy has occurred. It also may occur with large dietary protein intake.

Cautions

Twenty-four-hour specimens are preferred for determining creatinine clearance.

Intra-individual variability in creatinine excretion may be due to differences in muscle mass or amount of ingested meat.

Acute changes in glomerular filtration rate, before a steady state has developed, will alter the amount of urinary creatinine excreted.

Clinical Reference

1. Delaney MP, Lamb EJ: Kidney disease. In: Rifai N, Horvath AR, Wittwer CT, eds. Textbook of Clinical Chemistry. 6th ed.

Elsevier; 2018:1256-1323
2. Lamb EJ, Jones GRD: Kidney function tests. In: Rifai N, Horvath AR, Wittwer CT, eds. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. 6th ed. Elsevier; 2018:479-517
3. Kasiske BL, Keane WF: Laboratory assessment of renal disease: clearance, urinalysis, and renal biopsy. In: Brenner BM, ed. The Kidney. 6th ed. WB Saunders Company; 2000:1129-1170

Performance

Method Description
This enzymatic method is based on the conversion of creatinine with the aid of creatininase, creatinase, and sarcosine oxidase to form glycine, formaldehyde, and hydrogen peroxide. Catalyzed by peroxidase the liberated hydrogen peroxide reacts with 4-aminophenazone and HTIB (2,4,6-triiodo03-hydroxybenzoic acid) to form a quinone imine chromogen. The color intensity of the quinone imine chromogen formed is directly proportional to the creatinine concentration in the reaction mixture.(Package insert: Creatinine plus ver.2. Roche Diagnostics; 07/2024)

PDF Report
No

Day(s) Performed
Monday through Sunday

Report Available
1 to 3 days

Specimen Retention Time
7 days

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Main Campus

Fees & Codes

Fees
- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

Test Classification
This test has been cleared, approved, or is exempt by the US Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

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CPT Code Information

82570

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
RCTUR	Creatinine, Random, U	2161-8

Result ID	Test Result Name	Result LOINC® Value
RCTUR	Creatinine, Random, U	2161-8