Test Definition: OXU

Oxalate, U

Overview

Useful For

Monitoring therapy for kidney stones

Identifying increased urinary oxalate as a risk factor for stone formation

Diagnosis of primary or secondary hyperoxaluria

Testing Algorithm

See Hyperoxaluria Diagnostic Algorithm in Special Instructions.

Special Instructions

- Urine Preservatives-Collection and Transportation for 24-Hour Urine Specimens
- Hyperoxaluria Diagnostic Algorithm

Method Name

EnzymaticUsingOxalateOxidase

NY State Available

Yes

Specimen

Specimen Type

Urine

Necessary Information

24-Hour volume is required.

Specimen Required

Supplies: Diazolidinyl Urea (Germall) 5.0 mL (T822)

Container/Tube: Plastic, 5-mL urine tube (T465) or a clean, plastic aliquot container with no metal cap or glued insert

Specimen Volume: 4 mL

Collection Instructions:

1. Add 5 mL of diazolidinyl urea as a preservative at start of collection or refrigerate specimen during and after collection.

2. Collect urine for 24 hours.

3. Specimen pH should be between 4.5 and 8 and will stay in this range if kept refrigerated. Specimens with pH >8 may indicate bacterial contamination, and testing will be cancelled. Do not attempt to adjust pH as it will adversely affect results.

Additional Information:

1. Avoid taking large doses (>2 g orally/24 hours) of vitamin C during specimen collection.

2. SeeUrine Preservatives-Collection and Transportation for 24-Hour Urine Specimens inSpecial Instructions for multiple collections.

Forms

If not ordering electronically, complete, print, and send a Renal Diagnostics Test Request (T830) with the specimen.

Urine Preservative Collection Options

Note: The addition of preservative or application of temperature controls **must occur within 4 hours of completion** of the collection.

Ambient	No
Refrigerate	OK
Frozen	OK
50% Acetic Acid	No
Boric Acid	No
Diazolidinyl Urea	Preferred
6M Hydrochloric Acid	No
6M Nitric Acid	No
Sodium Carbonate	No
Thymol	OK
Toluene	No

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)	14 days	
	Frozen	14 days	

Clinical and Interpretive

Clinical Information

Oxalate is an end product of glyoxalate and glycerate metabolism. Humans have no enzyme capable of degrading

oxalate, so it must be eliminated by the kidney.

In tubular fluid, oxalate can combine with calcium to form calcium oxalate stones. In addition, high concentrations of oxalate may be toxic for renal cells.

Increased urinary oxalate excretion results from inherited enzyme deficiencies (primary hyperoxaluria), gastrointestinal disorders associated with fat malabsorption (secondary hyperoxaluria), or increased oral intake of oxalate-rich foods or vitamin C.

Since increased urinary oxalate excretion promotes calcium oxalate stone formation, various strategies are employed to lower oxalate excretion.

Reference Values

0.11-0.46 mmol/24 hours

9.7-40.5 mg/24 hours

The reference value is for a 24-hour collection. Specimens collected for other than a 24-hour time period are reported in unit of mmol/L for which reference values are not established.

Interpretation

An elevated urine oxalate (>0.46 mmol/24 hours) may suggest disease states such as secondary hyperoxaluria (fat malabsorption), primary hyperoxaluria (alanine glyoxalate transferase enzyme deficiency, glyceric dehydrogenase deficiency), idiopathic hyperoxaluria, or excess dietary oxalate or vitamin C intake.

In stone-forming patients high urinary oxalate values, sometimes even in the upper limit of the normal range, are treated to reduce the risk of stone formation.

Cautions

Ingestion of ascorbic acid (>2 g/24 hours) may falsely elevate the measured urinary oxalate excretion.

Do not collect in metal-capped containers.

Clinical Reference

Wilson DM, Liedtke RR: Modified enzyme-based colorimetric assay of urinary and plasma oxalate with improved sensitivity and no ascorbate interference: reference values and sample handling procedures. Clin Chem 1991;37:1229-1235

Performance

Method Description

The assay utilizes oxalate oxidase, which oxidizes oxalate to carbon dioxide and peroxide. In the presence of peroxidase, the peroxide oxidatively couples 3-methyl-2-benzothiazolinone and 3-dimethylaminobenzoic acid to form indamine dye, which is measured spectrophotometrically at 580 nm.(Kasidas GP, Rose GA: Continuous-flow assay for urinary oxalate using immobilized oxalate oxidase. Ann Clin Biochem 1985;22:412-419 [A modification of the method])

PDF Report

No

Day(s) and Time(s) Test Performed

Monday through Saturday

Analytic Time

3 days

Maximum Laboratory Time

5 days

Specimen Retention Time

7 days

Performing Laboratory Location

Rochester

Fees and 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 Regional Manager. For assistance, contact Customer Service.

Test Classification

This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the U.S. Food and Drug Administration.

CPT Code Information

83945

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
OXU	Oxalate, U	14862-7

Result ID	Test Result Name	Result LOINC Value
OCATE	Oxalate, U	14862-7
OXU1	Oxalate, U	2701-1
TM17	Collection Duration	13362-9
VL15	Urine Volume	3167-4
OX_A	Ox Conc (mmol/L)	34349-1
OXCN2	Oxalate Concentration	27222-9