MAYO CLINIC LABORATORIES

Test Definition: DOXA1

Oxalate Analysis, Hemodialysate

Overview

Useful For

Determining the amount of oxalate removed during a dialysis session

Individualizing the dialysis prescription of hyperoxaluric patients

Method Name

Enzymatic

NY State Available

Yes

Specimen

Specimen Type

Dialysate Fluid

Specimen Required

Specimen Type: Dialysate fluid
Patient Preparation: Patient should avoid taking vitamin C supplements for 24 hours prior to dialysis
Supplies: Urine Tubes, 10 mL (T068)
Container/Tube: Plastic, 10-mL urine tube or a clean, plastic aliquot container with no metal cap or glued insert
Specimen Volume: 5 mL
Collection Instructions: Adjust the pH of the specimen to 2.5 to 3.0 with 6M Hydrochloric Acid
Additional Information: Nonacidified frozen hemodialysate delivered to the laboratory within 3 days from collection will be accepted and the following comment will be added to the result: **In nonacidified hemodialysate stored frozen, oxalate values may increase spontaneously**.

Forms

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

Specimen Minimum Volume

2 mL

Reject Due To

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

Specimen Stability Information

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Specimen Type	Temperature	Time	Special Container
Dialysate Fluid	Frozen	14 days	

Clinical & Interpretive

Clinical Information

Oxalate is a dicarboxylic acid, an end product of glyoxalate and glycerate metabolism that is excreted in the urine where it is a common component of kidney stones (up to 85%). Hyperoxaluria can be either genetic (eg, primary hyperoxaluria) or acquired/secondary (eg, enteric hyperoxaluria), and can lead to nephrocalcinosis and renal failure. Monitoring the adequacy of oxalate removal during hemodialysis can be useful in the management of patients with hyperoxaluria and renal failure, particularly following transplantation.

Reference Values

Not applicable

Interpretation

An exponential decrease in oxalate signal is expected through dialysis procedure.

Signals below 2 mcM at any point during dialysis suggest that the plasma has been effectively cleared, although there can be rebound after dialysis ceases.

Total oxalate removed during a dialysis session can be estimated by multiplying the concentration of oxalate in the dialysate by the oxalate flow rate for each time period that the oxalate is measured.

Cautions

Proper specimen processing and acidification are essential to obtain a quality result and avoid nonenzymatic generation of oxalate from ascorbate (vitamin C).

Clinical Reference

1. Perinpam M, Enders FT, Mara KC, et al: Plasma oxalate in relation to eGFR in patients with primary hyperoxaluria, enteric hyperoxaluria and urinary stone disease. Clin Biochem 2017;50(18):1014-1019
2. Tang X, Voskoboev NV, Wannarka SL, et al: Oxalate quantification in hemodialysate to assess dialysis adequacy for primary hyperoxaluria. Am J Nephrol 2014;39(5):376-382
3. Marangella M, Petrarulo M, Mandolfo S, et al: Plasma profiles and dialysis kinetics of oxalate in patients receiving hemodialysis. Nephron 1992;60(1):74-80
4. Marangella M, Vitale C, Petrarulo M, et al: Bony content of oxalate in patients with primary hyperoxaluria or oxalosis-unrelated renal failure. Kidney Int 1995;48(1):182-187

Performance

Method Description

This is an enzymatic method based on the reduction of oxalate by oxalate oxidase. The reaction releases hydrogen peroxide, which in the presence of peroxidase reacts with a dye to give a colored end point that is measured using a BioTek EPOCH plate

spectrophotometer at 590 nm.(Package insert: Trinity Biotech, Oxalate Kit, Jamestown, NY, V. 07/2016)

PDF Report
No

Day(s) Performed
Monday through Friday

Report Available
3 to 7 days

Specimen Retention Time
14 days

Performing Laboratory Location
Rochester

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 modified from the manufacturer's instructions. Its performance characteristics were determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information
83945

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
DOXA1	Oxalate, Dialysate Fluid	47715-8

Result ID	Test Result Name	Result LOINC® Value
DOXA1	Oxalate, Dialysate Fluid	47715-8