MAYO CLINIC LABORATORIES

Test Definition: OPTU

Orthostatic Protein, Timed Collection, Urine

Overview

Useful For

Diagnosis of orthostatic proteinuria

As a second-order test for additional characterization of proteinuria of less than 3 grams/24 hours, particularly in children or adolescents

Profile Information

Test Id	Reporting Name	Available Separately	Always Performed
DOPTU	Daytime Orthostatic Protein, U	No	Yes
NOPTU	Nighttime Orthostatic Protein, U	No	Yes

Special Instructions

- Orthostatic Protein Measurement 24-Hour Urine: Collection Site Instructions
- Orthostatic Protein Measurement 24-Hour Urine: Patient Collection Instructions

Method Name

Turbidimetry

NY State Available

Yes

Specimen

Specimen Type

Urine

Ordering Guidance

This collection process requires 2 separate urine collections within a 24-hour period.

Collect specimen per instructions in Orthostatic Protein Measurement 24-Hour Urine: Collection Site Instructions (T546) in Special Instructions.

Necessary Information

This collection process requires 2 separate urine collections within a 24-hour period.
-Submit start and end times for collection and 16-hour volume (required).
-Submit start and end times for collection and 8-hour volume (required).

Specimen Required

Specimens should be collected before fluorescein is given or not collected until at least 24 hour later.

Supplies: 2 Sarstedt 5 mL Aliquot Tube (T914)
Daytime Collection
Container/Tube: Plastic, 5-mL tube
Specimen Volume: 4 mL
Collection Instructions:
1. Collect a 16-hour (daytime) urine specimen.
2. No preservative.
3. Invert well before taking 4-mL aliquot.
4. Do not over fill aliquot tube 4 mL at most.
5. Collect specimen per instructions in Orthostatic Protein Measurement 24-Hour Urine: Collection Site Instructions (T546) in Special Instructions.

Nighttime (Supine) Collection
Container/Tube: Plastic, 5-mL tube
Specimen Volume: 4 mL
Collection Instructions:
1. Collect an 8-hour (nighttime) urine specimen.
2. No preservative.
3. Invert well before taking 4-mL aliquot at most.

Forms

1. Orthostatic Protein Measurement 24-Hour Urine: Patient Collection Instructions in Special Instructions
2. If not ordering electronically, complete, print, and send a Renal Diagnostics Test Request (T830) with the specimen.

Specimen Minimum Volume

1 mL from 16-hour (daytime) urine collection/1 mL from 8-hour (nighttime) urine collection

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	
	Ambient	24 hours	
	Frozen	30 days	

Clinical & Interpretive

Clinical Information

Orthostatic proteinuria refers to the development of increased proteinuria that develops only when the person is upright and resolves when recumbent or supine. This condition is usually seen in children, adolescents, or young adults, and accounts for the majority of cases of proteinuria in childhood.

Orthostatic proteinuria usually does not indicate significant underlying renal pathology, and is usually not associated with other urine abnormalities such as hypoalbuminemia, hematuria, red blood cell casts, fatty casts, etc. Orthostatic proteinuria typically resolves over time.

This test characterizes this condition by obtaining 2 urine collections within a 24-hour time frame, one collection obtained while the person is recumbent or supine, the other when upright.

Reference Values

Nighttime (supine) collection: <68 mg/8 hours
Reference values have not been established for patients <18 years of age.

Daytime collection: <197 mg/16 hours
Reference values have not been established for patients <18 years of age

Interpretation

A supine 8-hour urine protein excretion of less than 68 mg/8 hours together with either 1) an elevated upright (16-hour) excretion of greater than 197 mg/16 hours, or 2) a 24-hour urine protein excretion of greater than 228 mg/24 hours is considered consistent with orthostatic proteinuria.

Cautions

It is not unusual for urine protein excretion derived from supine collections to be somewhat lower than protein excretion derived from upright collections. However, orthostatic or postural proteinuria is characterized by a supine excretion rate of less than 50 mg/8 hours.

False-proteinuria may be due to contamination of urine with menstrual blood, prostatic secretions, or semen.

The urinary protein concentration may rise to 300 mg/24 hours in healthy individuals after vigorous exercise.

Normal newborn infants may have higher excretion of protein in urine during the first 3 days of life.

The presence of hemoglobin elevates protein concentration.

Protein electrophoresis and immunofixation may be required to characterize and interpret the proteinuria.

Clinical Reference

1. Rinehart BK, Terrone DA, Larmon JE, et al: A 12-hour urine collection accurately assesses proteinuria in hospitalized hypertensive gravida. J Perinatol. 1999;19:556-558
2. Adelberg AM, Miller J, Doerzbacher M, Lambers DS: Correlation of quantitative protein measurements in 8-, 12-, and 24-hour urine samples for diagnosis of preeclampsia. Am J Obstet Gynecol. 2001 Oct;185(4):804-807
3. Rytand DA, Spreiter S: Prognosis in postural (orthostatic) proteinuria: forty to fifty-year follow-up of six patients after diagnosis by Thomas Addis. N Engl J Med. 1981;305(11):618-621

4. Robinson RR: Isolated proteinuria in asymptomatic patients. Kidney Int. 1980;18:395-406
5. Dube J, Girouard J, Leclerc P et al: Problems with the estimation of urine protein by automated assays. Clin Biochem. 2005:38(5) 479-485
6. Koumantakis G, Wyndham, L: Fluorescein interference with urinary creatinine and protein measurements. Clin Chem. 1991;37(10):1799
7. 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

Performance

Method Description
The sample is preincubated in an alkaline solution containing EDTA, which denatures the protein and eliminates interference from magnesium ions. Benzethonium chloride is then added, producing turbidity.(Package insert: Total Protein Urine/CSF. Roche Diagnostics; V13.0 11/2018)

PDF Report
No

Day(s) Performed
Monday through Sunday

Report Available
Same day/1 to 4 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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Orthostatic Protein, Timed Collection, Urine

CPT Code Information

84156 x 2

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
OPTU	Orthostatic Protein, U	1755-8

Result ID	Test Result Name	Result LOINC® Value
DPTU	Total Protein, 16 HR, U	49002-9
DUR4	Daytime collection duration	13362-9
DVOL	Day volume	19153-6
DPRO	Total Protein Conc, 16 HR, U	35663-4
NPTU	Total Protein, 8 HR, U	50209-6
DUR7	Nighttime collection duration	13362-9
VL	Night volume	19153-6
NPRO	Total Protein Conc, 8 HR, U	35663-4