Test Definition: UEBF

Urea Nitrogen, BF

Overview

Useful For

Identifying the presence of urine as a cause for accumulation of fluid in a body compartment

Assessing adequacy of peritoneal dialysis treatment protocols

Method Name

Photometric

NY State Available

Yes

Specimen

Specimen Type

Body Fluid

Necessary Information

1. Date and time of collection are required.

2. Specimen source is required.

Specimen Required

Preferred Source:

-Peritoneal fluid (peritoneal, abdominal, ascites, paracentesis)

-Pleural fluid (pleural, chest, thoracentesis)

-Drain fluid (drainage, JP drain)

-Peritoneal dialysate (dialysis fluid)

-Pericardial

Acceptable Source: Write in source name with source location (if appropriate)

Collection Container/Tube: Sterile container

Submission Container/Tube: Plastic vial

Specimen Volume: 1 mL

Collection Instructions:

1. Centrifuge to remove any cellular material and transfer into a plastic vial.

2. Indicate the specimen source and source location on label.

Forms

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

Specimen Minimum Volume

0.5 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	Reject
Gross icterus	Reject
Cerebrospinal fluid, breast milk, saliva, nasal secretions, gastric secretions, bronchoalveolar lavage (BAL) or bronchial washings, colostomy/ostomy, feces, urine, , sputum, or vitreous fluid	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Body Fluid	Refrigerated (preferred)	7 days	
	Frozen	30 days	
	Ambient	24 hours	

Clinical and Interpretive

Clinical Information

Byproducts of nitrogen metabolism are present in high concentration in urine compared to blood and serve as a surrogate marker for the identification of urine leakage into a body compartment. Concentrations of creatinine or urea nitrogen that exceed the concentration found in a concurrent sample of blood are suggestive of the presence of urine.(1)

Peritoneal, abdominal, pelvic drain fluids:

Disruption of the urinary tract with subsequent leakage of urine into body cavities may be considered as part of the differential diagnosis when body fluid effusions develop of unknown origin.(2) Metabolites such as creatinine or urea that are contained in urine at high concentrations are good candidates to measure in body fluids for this investigation. Elevated concentrations may elicit a more focused radiologic examination to identify possible bladder rupture or perforation or the development of urinary fistula, which are typically corrected by surgical intervention.

Peritoneal dialysis fluid:

Peritoneal dialysis (PD) is a type of dialysis in which hyperosmotic fluid is passed into the patient's peritoneal cavity for a prescribed dwell time, wherein the peritoneum is employed as the dialysis membrane. The dwell fluid containing waste molecules removed by dialysis is drained and replaced with fresh fluid and the process repeated. Measurements of urea, creatinine, glucose, or other electrolytes in serum, urine, and the peritoneal dialysate fluid, aid in the assessment of peritoneal membrane transport characteristics and serve as markers of dialysis adequacy.

Adequacy of PD is important to monitor because patients who maintain a sufficient clearance over time have longer survival.(2) Peritoneal urea clearance volume of distribution or urea (Kt/V) is calculated to measure solute clearance from the daily peritoneal urea clearance (Kt), and the volume of distribution of urea (V). Adequacy and membrane transport characteristics are calculated by plugging in the appropriate laboratory parameters into software packages used by dialysis centers.

Reference Values

An interpretive report will be provided.

Interpretation

Peritoneal and drain fluid concentrations should be compared to serum or plasma. A fluid to serum ratio of greater than 1.0 suggests the specimen may be contaminated with urine.(1)

Peritoneal dialysate urea nitrogen concentrations can be used to calculate the adequacy of peritoneal dialysis by monitoring solute clearance over time.(3)

All other fluids: Results should be interpreted in conjunction with serum urea nitrogen and other clinical findings.

Cautions

In very rare cases, gammopathy, in particular type IgM (Waldenstrom macroglobulinemia), may cause unreliable results.

Ammonium ions may cause erroneously elevated results.

Clinical Reference

1. Manahan KJ, Fanning J: Peritoneal fluid urea nitrogen and creatinine reference values. Obstet Gynecol. 1999 May;93(5 Pt 1):780-782. doi: 10.1016/s0029-7844(98)00516-x

2. Block DR, Florkowski CM: Body fluids. In: Rafai N, Horvath AR, Wittwer CT, eds. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. 6th ed. Elsevier;2018:chap 43

3. Canada-USA (CANUSA) Peritoneal Dialysis Study Group. Adequacy of dialysis and nutrition in continuous peritoneal dialysis: association with clinical outcomes. J Am Soc Nephrol. 1996;7:198-207

Performance

Method Description

This is a kinetic ultraviolet assay where urease cleaves urea to form ammonia and carbon dioxide. The ammonia formed then reacts with alpha-ketoglutarate and NADH in the presence of urease/glutamate dehydrogenase (GLDH) to yield glutamate and NAD. The decrease in absorbance, due to the consumption of NADH, is measured kinetically and is proportional to the amount of urea in the sample.(Package insert: Roche Urea/BUN reagent. Roche Diagnostic Corp; V7.0 07/2019)

PDF Report

No

Day(s) and Time(s) Test Performed

Monday through Sunday; Continuously

Analytic Time

Same day/1 day

Maximum Laboratory Time

1 day

Specimen Retention Time

1 week

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 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 U.S. Food and Drug Administration.

CPT Code Information

84520

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
UEBF	Urea Nitrogen, BF	3093-2

Result ID	Test Result Name	Result LOINC Value
UE_BF	Urea Nitrogen, BF	3093-2
FLD15	Fluid Type, Urea Nitrogen	14725-6