MAYO CLINIC LABORATORIES

Test Definition: NH3V

Ammonia, Plasma

Overview

Useful For

Assisting in the diagnosis of hepatic coma

Investigating and monitoring treatment for inborn errors of metabolism

Evaluating patients with advanced liver disease

Method Name

Photometric, Bromophenol Blue

NY State Available

Yes

Specimen

Specimen Type

Plasma EDTA

Shipping Instructions

Plasma must be separated from cells and frozen within 2 hours of collection. Freeze plasma on dry ice or in a freezer (-60 to -80 degrees C) for long-term storage or shipment.

Specimen Required

Collection Container/Tube: Lavender top (EDTA)
Submission Container/Tube: Plain, plastic screw-top tube
Specimen Volume: 0.5 mL or more
Collection Instructions:
1. Specimens should be put on ice immediately after collection.
2. Centrifuge at refrigerated temperature (4 degrees C).
3. Aliquot plasma into plastic screw-top tube. Keep on ice.
4. Freeze plasma within 2 hours of collection.

Specimen Minimum Volume

See Specimen 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
Plasma EDTA	Frozen (preferred)	7 days	
	Refrigerated	2 hours	

Clinical & Interpretive

Clinical Information

Ammonia is a waste product of protein catabolism; it is potentially toxic to the central nervous system. Increased plasma ammonia may be indicative of hepatic encephalopathy, hepatic coma in terminal stages of liver cirrhosis, hepatic failure, acute and subacute liver necrosis, and Reye's syndrome. Hyperammonemia may also be found with increasing dietary protein intake.

The major cause of hyperammonemia in infants includes inherited deficiencies of urea cycle enzymes, inherited metabolic disorders of organic acids and the dibasic amino acids lysine and ornithine, and severe liver disease.

Reference Values

< or =30 mcmol/L

Interpretation

Plasma ammonia concentrations do not correlate well with the degree of hepatic encephalopathy.

Elevated ammonia concentration may also be found with increased dietary protein intake.

Plasma ammonia concentrations in newborns younger than one week are elevated compared to adults. Values less than or equal to 82 mcmol/L have been observed.(1)

Cautions

Specimens should be put on ice immediately after collection, centrifuged at refrigerated temperature, and plasma kept on ice until analyzed.

Proper specimen handling is critical; false increases in ammonia may occur if transport and processing instructions are not strictly followed.

Clinical Reference

1. Madigan T, Block DR, Carey WA, et al: Proposed plasma ammonia reference intervals in a reference group of hospitalized term and preterm neonates. J App Lab Med. 2020 Mar 1;5(2):363-369
2. Rosenberg W: Liver disease. In: Rifai N, Horvath AR, Wittwer CT, eds. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. 6th ed. Elsevier; 2018:1348-1397

Performance

Method Description

Patient specimen is deposited on the slide where the spreading layer promotes the uniform distribution of the

specimen. Water and nonproteinaceous components travel to the underlying buffered reagent layer. The ammonia in the sample then diffuses through the semipermeable membrane to react with the ammonia indicator in the second reagent layer. The semipermeable membrane allows only the ammonia to pass and prevents buffer or hydroxyl ions from reaching the indicator layer where they would react with the indicator. After a fixed incubation period, the reflection density of the dye is measured using the white background of the spreading layer as a diffuse reflector.(Package insert: VITROS Chemistry Products Ammonia Instructions for Use, Version 11.0 Ortho-Clinical Diagnostics, Inc; 2019)

PDF Report
No

Day(s) Performed
Monday through Sunday

Report Available
Same day/1 day

Specimen Retention Time
1 day

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.

CPT Code Information
82140

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
NH3V	Ammonia, P	16362-6

Result ID	Test Result Name	Result LOINC® Value
NH3V	Ammonia, P	16362-6