

Plasma Ammonia Testing

Frequently Asked Questions

What is the purpose of the plasma ammonia test?

The purpose of the plasma ammonia test is to detect elevated levels of ammonia in the blood.¹ Elevated levels of ammonia can have many causes, including liver failure, drug reactions, hemolytic disease, gastrointestinal bleeds, and urea cycle disorders (UCDs) or other inborn errors of metabolism (IEMs).^{2,3}

When is the plasma ammonia test ordered?

The plasma ammonia test may be ordered when a neonate (first 28 days of life) has neurological symptoms of hyperammonemia, such as unexplained poor feeding or vomiting, alteration in consciousness, encephalopathy, respiratory distress, or sepsis-like symptoms.^{4,5}

In infants, children, or adults, the test may be ordered when an individual has symptoms suggestive of hyperammonemia, such as unexplained gastrointestinal presentations (e.g., vomiting or protein aversion), alteration in consciousness, encephalopathy, movement disorders, seizures, learning problems, developmental delay, or psychiatric presentations.^{4,5,6,7,10}

What does the plasma ammonia test result indicate?

A significantly increased concentration of ammonia in the blood indicates that the body is not effectively metabolizing ammonia, which may be causing the person's symptoms.^{1,4} Slightly raised ammonia concentrations may be diagnostically relevant, or they may be caused by improper sampling technique, transport, or analysis.^{4,9}

What non-disease and environmental factors may increase ammonia levels?

- **Muscular exertion or exercise immediately prior to blood draw.**^{1,8} To obtain the most accurate lab results, ensure the patient is at rest, not struggling, and not clenching their fist.²
- **Tourniquet use during blood draw.** Do not use a tourniquet, and keep the patient's arm as relaxed as possible.¹
- **Drawing blood through a small indwelling catheter,** which may cause hemolysis.⁹ Be sure to collect a free-flowing blood sample.⁸
- **Delay in testing the blood sample.** Ensure rapid transit to the lab. The ammonia in standing blood increases spontaneously due to generation and release of ammonia from red blood cells and the deamination of amino acids by enzymes.⁸
- **Use of certain drugs, including alcohol, barbiturates, diuretics, valproic acid, and narcotics.**¹
- **Cigarette smoking up to 9 hours before blood draw.**^{1,8}
- **Eating up to 4 to 6 hours before blood draw.**^{4,8}

What external factors may decrease ammonia levels?

- **Use of some antibiotics, such as neomycin.**¹

References

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