Test Definition: ALDU

Aldosterone, U

Overview

Useful For

Investigation of primary aldosteronism (eg, adrenal adenoma/carcinoma and adrenal cortical hyperplasia) and secondary aldosteronism (renovascular disease, salt depletion, potassium loading, cardiac failure with ascites, pregnancy, Bartter syndrome)

Special Instructions

- Urine Preservatives-Collection and Transportation for 24-Hour Urine Specimens
- Renin-Aldosterone Studies

Method Name

Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS)

NY State Available

Yes

Specimen

Specimen Type

Urine

Advisory Information

Advice on stimulation or suppression tests is available from Mayo Clinic's Division of Endocrinology and may be obtained by calling 800-533-1710.

Necessary Information

24-Hour volume is required.

Specimen Required

Patient Preparation: Spironolactone (Aldactone) should be discontinued for 4 to 6 weeks before testing.

Supplies: Urine tubes, 10-mL (T068)

Submission Container/Tube: Plastic, urine tube (T068)

Specimen Volume: 10 mL

Collection Instructions:

1. Collect urine for 24 hours.

2. Add 25 mL of 50% acetic acid as preservative at start of collection. Use 15 mL of 50% acetic acid for children <5 years old. This preservative is intended to achieve a pH of between approximately 2 and 4.

Additional Information: SeeUrine Preservatives-Collection and Transportation for 24-Hour Urine Specimens and Renin-Aldosterone Studies for more detailed instructions in Special Instructions.

Urine Preservative Collection Options

Ambient	OK
Refrigerate	OK
Frozen	OK
50% Acetic Acid	Preferred
Boric Acid	OK
Diazolidinyl Urea	No
6M Hydrochloric Acid	No
6M Nitric Acid	No
Sodium Carbonate	No
Thymol	No
Toluene	No

Specimen Minimum Volume

1 mL

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)	28 days	
	Frozen	28 days	
	Ambient	14 days	

Clinical and Interpretive

Clinical Information

Aldosterone stimulates sodium transport across cell membranes, particularly in the distal renal tubule where sodium is exchanged for hydrogen and potassium. Secondarily, aldosterone is important in the maintenance of blood pressure and blood volume.

Aldosterone is the major mineralocorticoid and is produced by the adrenal cortex. The renin-angiotensin system is the primary regulator of the synthesis and secretion of aldosterone. Likewise, increased concentrations of potassium in the plasma may directly stimulate adrenal production of the hormone. Under physiologic conditions, pituitary adrenocorticotropic hormone can stimulate aldosterone secretion.

Urinary aldosterone levels are inversely correlated with urinary sodium excretion. Normal subjects will show a suppression of urinary aldosterone with adequate sodium repletion.

Primary hyperaldosteronism, which may be caused by aldosterone-secreting adrenal adenoma/carcinomas or adrenal cortical hyperplasia, is characterized by hypertension accompanied by increased aldosterone levels, hypernatremia, and hypokalemia. Secondary hyperaldosteronism (eg, in response to renovascular disease, salt

depletion, potassium loading, cardiac failure with ascites, pregnancy, BartterÃ¢â‚¬â„¢s syndrome) is characterized by increased aldosterone levels and increased plasma rennin activity.

Reference Values

0-30 days: 0.7-11.0 mcg/24 hours*

31 days-11 months: 0.7-22.0 mcg/24 hours*

> or =1 year: 2.0-20.0 mcg/24 hours

*Loeuille GA, Racadot A, Vasseur P, Vandewalle B: Blood and urinary aldosterone levels in normal neonates, infants and children. Pediatrie 1981;36:335-344

For SI unit Reference Values, see https://www.mayocliniclabs.com/order-tests/si-unit-conversion.html

Interpretation

Under normal circumstances, if the 24-hour urinary sodium excretion is greater than 200 mEq, the urinary aldosterone excretion should be less than 10 mcg/24 hours.

Urinary aldosterone excretion greater than 12 mcg/24 hours as part of an aldosterone suppression test is consistent with hyperaldosteronism.

24-Hour urinary sodium excretion should exceed 200 mEq to document adequate sodium repletion.

See Renin-Aldosterone Studies in Special Instructions.

Note: Advice on stimulation or suppression tests is available from Mayo Clinic's Division of Endocrinology and may be obtained by calling 800-533-1710.

Cautions

The plasma renin activity (PRA) cannot be interpreted if the patient is being treated with spironolactone (Aldactone). Spironolactone (Aldactone) should be discontinued for 4 to 6 weeks before testing.

Angiotensin converting enzyme (ACE) inhibitors have the potential to "falsely elevate" PRA. Therefore, in a patient treated with an ACE-inhibitor, the findings of a detectable PRA level or a low sodium aldosterone (SA)/PRA ratio do not exclude the diagnosis of primary aldosteronism. In addition, a strong predictor for primary aldosteronism is a PRA level undetectably low in a patient taking an ACE-inhibitor.

Clinical Reference

1. Young WF Jr: Primary aldosteronism: A common and curable form of hypertension. Cardiol Rev 1999;7:207-214

2. Young WF Jr: Pheochromocytoma and primary aldosteronism: diagnostic approaches. Endocrinol Metab Clin North Am 1997;26:801-827

Performance

Method Description

Samples are spiked with deuterated internal standard and are hydrolyzed overnight with acid. Samples are then neutralized and extracted by solid phase extraction (SPE). The extracts are dried, reconstituted, and analyzed by LC-MS/MS.(Taylor RL, Singh RJ: Validation of liquid chromatography-tandem mass spectrometry method for analysis of

urinary conjugated metanephrine and normetanephrine for screening of pheochromocytoma. Clin Chem 2002 Mar;48[3]:533-539)

PDF Report

No

Day(s) and Time(s) Test Performed

Tuesday, Thursday; 1 p.m.

Analytic Time

2 days

Maximum Laboratory Time

8 days

Specimen Retention Time

14 days

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 was developed and its performance characteristics 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

82088

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
ALDU	Aldosterone, U	1765-7

Result ID	Test Result Name	Result LOINC Value
8556	Aldosterone, U	1765-7
TM47	Collection Duration	13362-9
VL45	Urine Volume	3167-4