MAYO CLINIC LABORATORIES

NEW TEST

Notification Date: July 16, 2021
Effective Date: August 17, 2021

Cortisol/Cortisone, Free, Random, Urine

Test ID: CCFR

Useful for:

Investigating suspected Cushing syndrome (hypercortisolism), when a 24-hour collection is prohibitive (ie, pediatric patients).

Assisting in diagnosing acquired or inherited abnormalities of 11-beta-hydroxy steroid dehydrogenase (cortisol to cortisone ratio)

Diagnosis of pseudo-hyperaldosteronism due to excessive licorice consumption

Profile Information:

Test ID	Reporting Name	Available Separately	Always Performed
COCOR	Cortisol, Random, U	No	Yes
CRETR	Creatinine, Random, U	Yes (order RCTUR)	Yes

Methods:

COCOR: Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS)
CRETR: Enzymatic Colorimetric Assay

Reference Values:

CORTISOL
Males
0-2 years: 3.0-120 mcg/g creatinine
3-8 years: 2.2-89 mcg/g creatinine
9-12 years: 1.4-56 mcg/g creatinine
13-17 years: 1.0-42 mcg/g creatinine
> or =18 years: 1.0-119 mcg/g creatinine
Females
0-2 years: 3.0-120 mcg/g creatinine
3-8 years: 2.2-89 mcg/g creatinine
9-12 years: 1.4-56 mcg/g creatinine

13-17 years: 1.0-42 mcg/g creatinine
> or =18 years: 0.7-85 mcg/g creatinine

CORTISONE
0-2 years: 25-477 mcg/g creatinine
3-8 years: 11-211 mcg/g creatinine
9-12 years: 5.8-109 mcg/g creatinine
13-17 years: 5.4-102 mcg/g creatinine
18-29 years: 5.7-153 mcg/g creatinine
30-39 years: 6.6-176 mcg/g creatinine
40-49 years: 7.6-203 mcg/g creatinine
50-59 years: 8.8-234 mcg/g creatinine
60-69 years: 10-270 mcg/g creatinine
> or =70 years: 12-311 mcg/g creatinine

Use the conversion factors below to convert each analyte from mcg/g creatinine to nmol/mol creatinine:

Conversion factors
Cortisol: mcg/g creatinine x 312=nmol/mol creatinine
Cortisone: mcg/g creatinine x 314=nmol/mol creatinine

Cortisol molecular weight=362.5
Cortisone molecular weight=360.4
Creatinine molecular weight=113.12

Specimen Requirements:

Supplies: Plastic, 10-mL urine tube (T068)

Container/Tube: Clean, plastic aliquot container with no metal cap or glued insert

Preferred: Refrigerated

Specimen Volume: 10 mL

Collection Instructions: Collect a random urine specimen

Minimum Volume: 5 mL

Specimen Stability Information:

Specimen Type	Temperature	Time
Urine	Refrigerated (preferred)	14 days
	Ambient	72 hours
	Frozen	28 days

Cautions:

Random urine cortisol results are less reliable than results obtained from properly collected and complete 24-hour urine specimens, which are not affected by diurnal variations in cortisol levels.

This test has limited usefulness in the evaluation of adrenal insufficiency.

Acute stress (including hospitalization and surgery), alcoholism, depression, and many drugs (eg, exogenous cortisone, anticonvulsants) can obliterate normal diurnal variation, affect response to suppression/stimulation tests, and increase baseline levels.

Liquid chromatography-tandem mass spectrometry methodology eliminates analytical interferences including carbamazepine (Tegretol) and synthetic corticosteroids.

Random urine specimens may yield falsely elevated values when patients have a high urinary output.

Renal disease (decreased clearance) may cause falsely low values.

Values may be elevated to twice normal in pregnancy.

Patients with exogenous Cushing syndrome caused by ingestion of hydrocortisone will not have suppressed cortisol and cortisone values.

When N-acetylcysteine is administered at levels sufficient to act as an antidote for the treatment of acetaminophen overdose, it may lead to falsely decreased creatinine results.

CPT Code:

82542
82530
82570

Day(s) Setup: Monday through Friday; 4 p.m. **Analytic Time:** 2 days

Questions

Contact Joshua Yang, Laboratory Technologist Resource Coordinator at 800-533-1710.