MAYO CLINIC LABORATORIES

Test Definition: HCQ

Hydroxychloroquine, S

Overview

Useful For

Monitoring serum hydroxychloroquine concentrations, assessing compliance, and adjusting dosage in patients

Method Name

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

NY State Available

Yes

Specimen

Specimen Type

Serum Red

Specimen Required

Collection Container/Tube: Red top (gel tubes/SST are **not** acceptable)

Submission Container/Tube: Plastic vial

Specimen Volume: 1 mL

Collection Instructions:

1. Collect specimen immediately before next scheduled dose.

2. Centrifuge and aliquot serum into plastic vial within 2 hours of collection.

Forms

If not ordering electronically, complete, print, and send a Therapeutics Test Request (T831) with the specimen.

Reject Due To

Gross hemolysis	OK
Gross lipemia	OK
Gross icterus	OK

Specimen Minimum Volume

0.5 mL

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum Red	Refrigerated (preferred)	28 days	
	Frozen	28 days	
	Ambient	21 days	

Clinical & Interpretive

Clinical Information

Hydroxychloroquine is an antimalarial drug used to treat or prevent malaria. It is highly effective against erythrocytic forms of *Plasmodium* but not effective against exoerythrocytic forms of parasites. Hydroxychloroquine is also used to treat symptoms of acute or chronic rheumatoid arthritis and systemic lupus erythematosus (SLE).

Adult doses range from 400 mg/week for suppressive therapy to 1200 mg/day for acute malaria attacks. Typical daily doses of 200 to 600 mg are used for SLE and rheumatoid diseases. Hydroxychloroquine has a long terminal elimination half-life in blood (>40 days), which exceed those in serum. The oral bioavailability averages 75%.

Hydroxychloroquine accumulates in several organs, especially melanin-containing retina and skin. Mild to moderate overdose can result in gastrointestinal tract effects (ie, nausea, vomiting, and abdominal pain), headache, visual and hearing disturbances, and neuromuscular excitability. Acute hepatitis, cardiotoxicity, and retinopathy may occur with therapeutic doses. The effects of overdosage with hydroxychloroquine include headache, drowsiness, visual disturbances, convulsions, cardiovascular collapse, and respiratory arrest. Toxic retinopathy has also been associated with higher doses and longer duration of use.

Reference Values

For suppressive treatment of malaria, suggested plasma or serum concentrations should be >10 ng/mL.

For systemic lupus erythematosus, proposed serum target concentrations should be > or =500 ng/mL.

Interpretation

The serum concentration should be interpreted in the context of the patient's clinical response and may provide useful information in patients showing poor response, noncompliance, or adverse effects. Concentrations less than 106 ng/mL have been associated with non-compliance.

Cautions

Specimens that are obtained from serum gel tubes are not acceptable, as the drug can absorb on the gel and lead to falsely decreased concentrations.

Hydroxychloroquine is currently under investigational use for the prevention or postexposure prophylaxis and treatment of coronavirus disease 2019 (COVID-19); the safety and efficacy of its use have not been established.

Clinical Reference

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11. Lu H: Efficacy and safety of hydroxychloroquine for treatment of pneumonia caused by 2019-nCoV (HC-nCoV). US National Library of Medicine (NLM). 2020. Accessed March 11, 2022. Available at clinicaltrials.gov/ct2/show/NCT04261517

12. Post-exposure prophylaxis for SARS-coronavirus-2. US National Library of Medicine (NLM). 2020. Accessed March 11, 2022. Available at clinicaltrials.gov/ct2/show/NCT04308668

Performance

Method Description
Samples are extracted with analyte detection by tandem mass spectrometry.(Unpublished Mayo method)

PDF Report
No

Specimen Retention Time
14 days

Performing Laboratory Location
Rochester

Fees & Codes

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 US Food and Drug Administration.

CPT Code Information
80220

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
HCQ	Hydroxychloroquine, S	3684-8

Result ID	Reporting Name	LOINC®

64947	Hydroxychloroquine, S	3684-8