

Mercury

Synonyms

Hg, quicksilver.

Clinical Indication

Suspected toxicity.

Absorption of elemental and inorganic mercury is negligible when ingested and relatively harmless. However, greater than 80% of elemental mercury is absorbed when inhaled, which may give rise to pneumonitis and pulmonary oedema. In contrast, >90% of organic mercury is absorbed from the intestine and phenyl mercury is absorbed through the skin. Toxicity from organic mercury usually manifests as CNS disturbances. Organic mercury is found in fish and bioaccumulates therefore large predatory fish e.g. tuna, swordfish) may have high concentrations of organic mercury in their tissue.

Chronic exposure to lower concentrations causes gingivitis and stomatitis with excessive salivation, headaches and CNS effects. Symptoms of long-term exposure may be vague in the form of headaches and irritability.

Ingestion of inorganic mercury salts produces abdominal pain, vomiting and corrosion of mucosal membranes and following absorption, renal tubular necrosis.

There is little evidence of long term hazard to patients from use of mercury in dental amalgam (mixture of metallic mercury and a silver-tin alloy). A [dental amalgam fact file](#) is available from the British Dental Association.

Part of Profile / See Also

Request Form

Combined Pathology manual Blood form or ICE request

Availability / Frequency of Analysis

Referred test: Analysed by Trace Element Laboratory, King's College Hospital [Synnovis 9067](#)), if specific criteria met.

Turnaround Time

4 weeks

Patient Preparation

None required.

Sample Requirements

Do not take samples on a Friday.

Specimen Type

If exposure to elemental or inorganic mercury is suspected, urine is the preferred sample. However, if exposure to organic mercury is suspected, a blood sample is preferred.

Volume

Container



Pink / purple top (EDTA) tube



Paediatric EDTA (Red top – Sarstedt)



Paediatric EDTA (Lavender top – BD Microtainer)

Please also send an empty 'control' tube similar to the tube that the sample has been taken into.

For suspected exposure to elemental mercury or to inorganic mercury salts, determination of urinary mercury output is the estimation of choice. An early morning urine sample is appropriate in the first instance followed by a 24 hour collection if the result is equivocal.

Reference Range & Units

Blood: <50 nmol/L

Urine: <5 nmol/mmol creatinine

Interferences

Interpretation & Clinical

Decision Value (if applicable)

If the patient consumes high quantities of sea food, this should be borne in mind when interpreting mercury concentrations.

References

<https://www.synnovis.co.uk/our-tests/mercury>

Test code

Blood mercury: BMER, Random urine mercury: UMER, 24 hour urine mercury: 24ME

Lab Handling

DO NOT SEPARATE SAMPLE. Store whole blood at 4°C in referrals rack. Store spot urine sample at 4C in referrals rack. Process 24 hour urine mercury as per normal protocol for 24 hour urines and store aliquot (in a universal) at 4C in the referrals rack (ensure total volume is recorded on the universal). Sent daily by courier to King's College, London. Ideally, samples should be shipped within 24 hours. If a sample is bled on a Friday, please alert the referrals team and dependent on the clinical details, an additional courier may need to be arranged.



9067

Accredited to
ISO 15189:2012