

Calcitonin

Synonyms

Clinical Indication

Calcitonin is produced from the parafollicular C-cells of the thyroid gland in response to a rise in serum calcium concentration. Medullary thyroid carcinoma (MTC) is a tumour of the calcitonin-producing C-cells which occurs in a sporadic and in an inherited form. As some MTCs are hereditary it is important to screen all family members for excess calcitonin when a case is diagnosed.

Calcitonin is used for diagnosis of suspected MTC. In cases of familial origin, calcitonin can be used as a screening test.

Calcitonin is also used in confirmed MTC to monitor treatment, assess prognosis and detect recurrence. The circulating calcitonin concentration correlates well with MTC tumour volume. Calcitonin should be measured 15 days post-surgery (at the earliest) and will gradually decline over a 2 month period.

An elevated calcitonin alone is not sufficient for the diagnosis of MTC; ultrasound and fine needle aspiration cytology should be performed. Abnormally high calcitonin may be observed in non-thyroidal disorders or in response to certain drugs therefore results must be interpreted in light of the clinical presentation and history.

Part of Profile / See Also

Request Form

Combined Pathology manual Blood request form or ICE request.

Availability / Frequency of Analysis

Referred test: Analysed by Biochemistry, Hammersmith Hospital, if specific criteria met. [\(8673\)](#)

Turnaround Time

3 weeks

Patient Preparation

Fasting sample is recommended. Patients should attend Basildon or Southend phlebotomy departments for immediate sample processing.

Sample Requirements

Specimen Type

Serum

Volume

2 ml

Container



Yellow top (SST) tube



Paediatric SST (brown top - Sarstedt)



Paediatric SST tube (yellow top - BD Microtainer)

Samples should be transported to laboratory immediately.

Reference Range & Units

Male: <11.8 ng/L

Female: <4.8 ng/L

Interferences

Visible haemolysis invalidates the result. Proton pump inhibitors, glucocorticoids, beta-blockers and glucagon can be a cause of falsely elevated results.

Interpretation & Clinical

Decision Value (if applicable)

In early disease basal levels of calcitonin may be normal. Increased diagnostic sensitivity may be obtained using pentagastrin stimulation.

Calcitonin may be raised in other malignancies (breast, lung, pancreas), pheochromocytoma, renal failure, hyperparathyroidism and Paget's disease.

Biochemical cure for MTC is defined as the normalisation of calcitonin levels post surgery. Biochemical cure is only observed in 40-66% of patients and further resection may be required.

References

Perros P, et al. Management of thyroid cancer. *Clin Endocrinol (Oxf)*. 2014; **81**:1–122.

<http://www.acb.org.uk/docs/default->

[source/committees/scientific/amalc/calcitonin.pdf](http://www.acb.org.uk/docs/default-source/committees/scientific/amalc/calcitonin.pdf)

Test code

CALN

Lab Handling

Centrifuge and aliquot within 30 minutes of venepuncture into 2 tubes and store in the frozen referrals rack at -20°C. Please ensure you write the sample type on the aliquots. Samples sent frozen by courier to Charing Cross Hospital, London.

