

INVESTIGATION OF SUSPECTED HYPERCORTICOLISM

OVERNIGHT DEXAMETHASONE SUPPRESSION TEST

Principle- In normal subjects, dexamethasone suppresses ACTH and therefore, cortisol secretion. In Cushing's syndrome, there is incomplete suppression.

Contra-indications and side effects.

Patients on enzyme-inducing drugs (e.g. anticonvulsants, rifampicin) may rapidly metabolise dexamethasone and give a false positive result i.e. no or insufficient suppression. Women on oestrogen therapy may fail to suppress adequately due to increased cortisol-binding globulin. If possible, oestrogen containing medication such as combined oral contraceptive pill and HRT should be stopped 6 weeks before testing. False positive results may also be obtained in patients with depression, obesity or alcoholism. In these cases, a 48 hour, low dose dexamethasone test may be undertaken.

Dexamethasone may precipitate seizures in predisposed patients, such as those with epilepsy or raised intracranial pressure. If in doubt, please contact the Endocrine team.

Overnight dexamethasone suppression test

Preparation - This is an outpatient test and no patient preparation is necessary.

Please state, "overnight dexamethasone suppression" in the clinical details section on the form.

Procedure –

- Sample requirements 1 x 4 mL clotted vacutainer (red top)
- Patient takes 1 mg dexamethasone orally at 23.00 h.
- Following morning at 09.00 a blood sample is taken for cortisol.

Interpretation –

Normal response - Normal adrenal suppression post dexamethasone is a serum cortisol of **less than 50 nmol/L** and will indicate that Cushing's is unlikely, but if clinical suspicion remains high, suggest discuss with Consultant Chemical Pathologist or Consultant Endocrinologist.

Impaired response - If there is impaired suppression, i.e. serum cortisol is > 50 nmol/L, refer to Consultant Endocrinologist for consideration of low dose dexamethasone suppression test(see below)..

48 hour low dose dexamethasone suppression test

Preparation

This is usually an inpatient test as strict adherence to 6 hourly dose is needed. It can be done as outpatient following the first sample if it is believed that the patient will take their medications on time. All oral oestrogen therapy should be stopped 6 weeks prior to test. Patients on sex steroid implants might generate results that are difficult to interpret.

Procedure

- At 9 am on day 1, a sample for baseline cortisol (1 red top bottle) along with a sample for ACTH (1 purple top bottle **taken to the lab immediately**) is taken and immediately followed by the oral administration of the first dose of dexamethasone of 0.5 mg.
- Thereafter, 0.5 mg of dexamethasone is to be taken / given orally every 6 hours.
- Final dose of dexamethasone will be taken at **3 am** on day 3 (*)
- At **9 am** on day 3, a sample is collected for serum cortisol.

* Total number of doses of dexamethasone = 8, in the 48 hour dexamethasone suppression test.

Interpretation

Serum cortisol on day 3 should be **less than 50 nmol/L**.

Enquires . If you have any enquiries please contact the laboratory 01622-224465 Mon-Fri 9.00 am – 5.30 pm.

References

1. **Nieman LK, Biller BM, Findling JW, Newell-Price J, Savage MO, Stewart PM, Montori VM.** [The diagnosis of Cushing's syndrome: an Endocrine Society Clinical Practice Guideline.](#) J Clin Endocrinol Metab. 2008 May;93(5):1526-40