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Document title:	Endocrine Dynamic Function Test Protocols - Adults		

Overnight Dexamethasone Suppression Test (ONDST)

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

Indications

Screening test for subjects suspected of Cushing's syndrome.

Contraindications

- Patients on enzyme inducing drugs e.g. anti-convulsants may rapidly metabolise dexamethasone.
- Oestrogens (e.g. pregnancy, HRT or COC) may induce cortisol binding protein and artefactually increase total cortisol levels.
- **Urine collection for 24 hr urinary free cortisol must not occur during or on the day following this test.**

Side Effects

None

Requirements

- 1 mg dexamethasone tablet
- 1 brown top serum tube

Procedure

The patient to take 1 mg dexamethasone orally at 23:00 and the following morning at 09:00 a blood sample to be taken for serum cortisol (brown top tube).

Interpretation of results

A normal response is shown by suppression of 09:00 cortisol to <50 nmol/L.

Failure to suppress is seen in the autonomous secretion of cortisol found in Cushing's syndrome. With this cut off, there will be a high false positive rate.

For patients who fail to suppress to <50 nmol/L the laboratory will analyse the sample for dexamethasone:

Dexamethasone <3.0 nmol/L suggests impaired absorption or excess metabolism of dexamethasone, an alternative biochemical screening test to investigate hypercortisolism should be considered. May indicate dexamethasone has not been taken if non compliance is suspected.

Dexamethasone ≥ 3.0 nmol/L is consistent with adequate absorption and metabolism of dexamethasone.

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Sensitivity and specificity

Using a cortisol of 50 nmol/L as the test cut-off, provides sensitivity of 95% with 80% specificity (Wood et al. (1997) Ann Clin Biochem 34:222-229). Specificity is increased to 95% if the cut-off is raised to 140nmol/L (Pecori et al/ (2007) Clin Endocrinol 66:251-257).

If there is strong clinical or biochemical evidence for Cushing's syndrome, a 48h low dose dexamethasone test should be performed as this is more specific.

Normal subjects rarely (2%) fail to suppress with overnight dexamethasone unless they are depressed (10-50%), obese (10%) or systemically unwell (10-20%).

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