

## Low Dose Dexamethasone Test – Summary Clinical Guideline

Reference No: CHISCG7

### Low dose Dexamethasone Test for the Confirmation of Cushing's Syndrome

**THIS TEST IS ONLY TO BE PERFORMED FOLLOWING DISCUSSION WITH A CONSULTANT  
BIOCHEMIST OR ENDOCRINOLOGIST**

#### INDICATIONS

As a diagnostic test for Cushing's Syndrome (and initial determination of differential diagnosis).

#### CONTRAINDICATIONS

Severe stressful illness/infection  
Active peptic ulceration

#### SIDE EFFECTS

- Possibility of slightly raised blood sugars in Diabetic patients
- Patients with depression may experience a slight mood alteration

#### PRECAUTIONS

Care in patients with:

1. Diabetes Mellitus
2. Psychiatric symptoms in Cushing's syndrome which may worsen

A number of conditions may cause non-suppression with low-dose dexamethasone in the absence of Cushing's syndrome and therefore consideration should be given to whether the test is appropriate:

1. *Severe endogenous depression*: Patients may have an abnormal circadian rhythm.
2. *Alcoholism (alcoholic pseudo-Cushing's)*: The mechanism is ill-understood; rapidly reverses on stopping drinking.
3. *Hepatic enzyme-inducing drugs*: e.g. Phenytoin, Phenobarbitone, Rifampicin etc. These cause more rapid metabolism of dexamethasone to levels which fail to suppress the normal pituitary-adrenal axis. A circadian rhythm study, 24h urine cortisol collection or CRH test may help resolve the problem.
4. *Glucocorticoid resistance syndrome*: A rare familial disorder in which basal glucocorticoid levels are high and only partially suppress with dexamethasone. The patients are not cushingoid and the disorder is due to receptor mutation.
5. *Failure to take dexamethasone correctly*: Check with patient.
6. *Oestrogen therapy*: Patients on the oral contraceptive will have high basal cortisol due to an increased cortisol binding globulin. Suppression will occur, but may not be completely normal.

#### PREPARATION

Planning: This test can be done as an inpatient procedure, or as an outpatient procedure provided the patient fully understands the importance of the dose and sample collection times and can attend

the hospital for the blood tests. A patient information leaflet exists for this test and should be sent to the patient ahead of the procedure.

Patient: No special patient preparation is required.

Equipment:

- Dexamethasone, 0.5 mg tablets x 8
- One purple top (EDTA) tubes for ACTH sample
- Two yellow top (SST) tubes for cortisol samples (and final dexamethasone level)

**PROCEDURE**

The request form must state clearly that samples are part of a dexamethasone suppression test and should state date, day of test, and time of sample, and for urines dates and times of collection period. All medication should be noted on the request form. It is important that dexamethasone tablets are taken **strictly 6-hourly** for this test. The timings shown below may need to be adjusted if the basal sample is not collected at exactly 09:00.

Sample Requirements:

- Serum cortisol and final check dexamethasone level (Yellow top sample). Note that the sample will only be sent for dexamethasone level if the final cortisol is not suppressed to <50 nmol/L.
- Plasma ACTH (Purple top, EDTA sample). This assay will only be done if cortisol results indicate the need

Day & Time	Blood sample	Dexamethasone
1 09:00 15:00 21:00	Take basal sample at 09:00 before giving dexamethasone (Cortisol – Yellow top, ACTH – purple top)	0.5 mg 0.5 mg 0.5 mg
2 03:00 09:00 15:00 21:00		0.5 mg 0.5 mg 0.5 mg 0.5 mg
3 03:00 09:00	48hr sample at 09:00 (Cortisol and dexamethasone level – Yellow top)	0.5 mg

**INTERPRETATION**

For interpretation of results please refer to the full clinical guideline.