High dose Dexamethasone Test - Full Clinical Guideline

Reference No: CHISCG34

High dose Dexamethasone Test for the Differential Diagnosis of ACTH Dependant Cushing's Syndrome

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

1. Introduction

Dexamethasone is a synthetic steroid with 25 times the glucocorticoid activity of cortisol. It does not interfere with cortisol measurement.

Patients with pituitary dependent Cushing's syndrome (Cushing's disease) will normally suppress following high dose dexamethasone, whereas patients with adrenal tumours or ectopic ACTH do not. A CRH test may also be used in the differential diagnosis of Cushing's syndrome and offers additional information (see separate protocol for CRH test).

Note: 8mg/d of dexamethasone is equivalent to more than 10 times the normal replacement dose of hydrocortisone.

2. Guideline

INDICATIONS

In the differential diagnosis of Cushing's syndrome

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

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, 2.0 mg tablets x 8
- Two purple top (EDTA) tubes for ACTH samples
- Two yellow top (SST) tubes for cortisol samples

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 (Yellow top sample)
- 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	Take basal sample at 09:00 before giving dexamethasone (Cortisol – Yellow top, ACTH – purple top)	2 mg
15:00		2 mg
21:00		2 mg
2 03:00		2 mg
09:00		2 mg
15:00		2 mg
21:00		2 mg
3 03:00		2 mg
09:00	48hr sample at 09:00 (Cortisol – Yellow top, ACTH – purple top)	

INTERPRETATION

Typically patients with Cushing's disease (i.e. ACTH secretion from the pituitary) show greater than 50% suppression of cortisol after high dose dexamethasone whereas patients with ectopic ACTH production or adrenal adenoma will not.

Some investigators have questioned the additional information offered by the high dose dexamethasone test. Most patients with Cushing's Disease will suppress following the low dose dexamethasone test.

3. References

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4. Documentation Controls

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