

Department:	Biochemistry		
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Document title:	Endocrine Dynamic Function Test Protocols - Adults		

Cortisol Day Curve on Hydrocortisone

Indications

Establish correct dose and distribution through the day of the replacement dose of hydrocortisone (n.b. this has no value in patients taking prednisolone). Some hepatic enzyme inducers such as Rifampicin, Phenobarbitone and Phenytoin will increase clearance of hydrocortisone and may lead to problems with maintenance therapy.

Contra-indications

None

Requirements

- IV cannula
- Patient's hydrocortisone therapy
- 5 x brown top serum tubes

Procedure

PATIENT PREPARATION

- Oral oestrogen therapy must be stopped 6 weeks before the day curve otherwise it is difficult to interpret because of oestrogen induced rise in CBG.
- **It is essential to clearly explain and remind the patient not to take their morning dose of hydrocortisone until the first blood sample is taken**
- Timing of samples will vary depending on dose regime, example timings given below
- Record time of hydrocortisone dose and time each sample is collected

Sample No.	Approx Time	Procedure	Samples
1	On patient Arrival	Insert IV cannula Take sample for cortisol pre-dose	1 x brown top serum tube
		Patient should take normal morning dose of hydrocortisone	
2	0900	Take sample for cortisol	1 x brown top serum tube
3	1230	Take sample for cortisol	1 x brown top serum tube
		Patient should take afternoon dose of hydrocortisone	Please note, this time may vary between patients
4	1400	Take sample for cortisol	1 x brown top serum tube
		Patient should take afternoon dose of hydrocortisone	Please note, this time may vary between patients
5	1730	Take sample for cortisol	1 x brown top serum tube

Note: if additional samples are required then these can be sent to the laboratory as further individual cortisol requests in EPIC (only 5 samples included in DFT).

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Interpretation of results

Aim for adequate cortisol levels throughout the day (peak <900 nmol/L, trough >100 nmol/L).

As a guide, the values below are commonly found. Minor departures do not necessarily need dose adjustment, especially if the patient is well:

- Morning peak cortisol 500 – 800 nmol/L
- Lunchtime peak cortisol 400 – 500 nmol/L
- Post evening dose 300 – 400 nmol/L

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