Cortisol Day Curve – Monitoring hydrocortisone replacement

Test Name: CHILD CORTISOL DAY CURVE – MONITORING HYDROCORTISONE REPLACEMENT DFT

Indication
- Patients with adrenal insufficiency require monitoring to ensure that they are receiving an adequate dose of hydrocortisone replacement therapy.

Precautions
- None

Preparation
- The patient is required to attend the ETC as a day case, generally arriving **before** taking their normal morning dose of hydrocortisone.
- In this situation, the baseline blood sample should be taken **before** the morning dose of hydrocortisone.
- Dependent on hospital admission, this protocol can be started at any time of day as long as it covers a number of hydrocortisone doses with sampling every 2 hours. The protocol indicated below is for guidance but may be adapted.

Protocol
1. Insert a reliable cannula in order to collect blood samples at the time points indicated or specified by the requesting clinician.

2. The time points of blood collection will depend upon the hydrocortisone treatment regimen of the patient. Blood samples for cortisol should be collected pre-dose and then 2 hourly, stopping with the next pre-dose blood sample. ACTH may also be measured every 4 hours if this is thought to be clinically useful. The table below is for guidance.

3. **All hydrocortisone doses should be prescribed and administered at exactly the same times as the patient would administer doses at home.**

4. If it is felt there is clinical need to continue to monitor the adequacy of hydrocortisone replacement, this profile can be continued with blood samples for cortisol every 2 hours and for ACTH every 4 hours.

Time Points:

Patients should take their normal dose of hydrocortisone at their usual times. Blood samples should be collected before the next hydrocortisone dose. This information should be written in the day curve template and stored with the patient notes.

Time	Time point	Sample
On patient arrival	0 hrs - Take blood sample before hydrocortisone dose	Blood for Cortisol/ACTH
08:00	Patient should take normal morning dose of hydrocortisone	
10:00	2 hrs	Blood for Cortisol
12:00	4 hrs	Blood for Cortisol/(ACTH)
	Patient should take normal lunchtime dose of hydrocortisone	

14:00	6 hrs	Blood for Cortisol
16:00	8 hrs	Blood for Cortisol/(ACTH)
18:00	10 hrs	Blood for Cortisol

Samples

Cortisol   1.2 mL lithium heparin (orange top) or clotted blood (white brown top)

ACTH   1.8mL EDTA tube (pink top)

Send ACTH samples IMMEDIATELY to laboratory on ice for centrifugation and freezing

Example Cortisol Day Curve Template

Date: *1st May 2020*

Name: *Txxxxx Rxxxx*   Date of Birth: *01/01/2008*   Hospital Number: *xxxxxx*

IMPORTANT – please remember to take blood samples for cortisol/ACTH **prior** to giving morning dose.

Normal times/dose – *10/5/5 mg hydrocortisone given @ 8am, 12noon, 6pm.*

Please fill in chart below with times that cortisol samples have been taken as well as the time and dose of any medication given.

Time medication given (include dose)	Time cortisol/ACTH samples were taken	Result
	08:05	*244 nmol/L*
08:10 am *10mg hydrocortisone (after blood sample)*		
	10:05	*511 nmol/L*
	12:10	*230 nmol/L*
12:15 *5 mg hydrocortisone*		
	14:00	*404 nmol/L*
	16:00	*131 nmol/L*

Cortisol Day Curve Template

Date:

Name: Date of Birth: Hospital Number:

IMPORTANT – please remember to take blood samples for cortisol/ACTH **prior** to giving morning dose.

Normal dosage regimen (times/dose) –

Please fill in chart below with times that cortisol samples have been taken as well as the time and dose of any medication given.

Time medication given (include dose)	Time cortisol/ACTH samples were taken	Result
	A **pre-dose** sample is always required	