

Corticotrophin releasing hormone (CRH) Test

Indication:

1. Investigation of Cushing's syndrome.
2. Hypothalamic pituitary function in investigation of ACTH deficiency.

Contraindication:

Allergy.

Precautions:

Marked transient hypotension may occur. Warn patient of facial flushing.

Procedure:

1 week before test: Ascertain purpose of test. **If test not part of Cushing's' investigation omit ACTH samples.**

- Inform registrar on call and request prescription of CRF.
- Inform lab.
- Inform ward pharmacist, requires to site prescription.
- Pharmacy hold stock of CRF. 100mcg CRF is diluted to a volume of 2ml with normal saline. Drug used ACTHREL.
- Patient should be given 'CRH Test' information/ letter.
- Time of day not critical. Patient **not fasting**. Patient to remain supine throughout test.
- One nurse dedicated to test. Minute minder required.
- Record BP (use Omron) at each sample time. Note time of CRF administration & sample times on BP chart.iv cannulation required. (green venflon) Doctor required for IV administration.
- Blood volumes & tubes: Cortisol - brown (serum gel) 4ml (minimum volume 1.5ml). ACTH - grey (EDTA) 4.7ml (minimum volume 1.5ml). **Put named ACTH tubes on ice before start of test.** WGH Combined Lab. form.

Sampling:

- Send samples at each collection time. **Do not batch.** Send form with first sample.
- Tel. lab immediately prior to sending -15 sample. Mark collection times clearly on tubes.
- Cortisol -15 0 +15 +30 +45 +60 +120
- ACTH on ice -15 0 +15 +30 +45 +60 +120 **send with cool pack.**
- Flush iv cannula with Sodium Chloride 0.9% following collection of samples. Using 2ml syringe collect and discard 0.5ml. blood prior to collection of samples.

Order of iv. administration:

100mcg. CRF administered iv. over 30-60 seconds immediately following collection of 0 sample. Flush with 5mls. Sodium Chloride 0.9%.

Interpretation:

- Basal is mean of time –15 and 0. Pituitary Cushing's suggested by peak cortisol >120% baseline or by peak ACTH > 15%. Patients with Cushing's disease show a normal or exaggerated response) whereas ectopic ACTH secreting tumours show no response. 10-15% of patients with Cushing's disease may not respond to CRF.
- Cortisol >600nmol/l suggests intact hypothalamic pituitary axis.

Protocol developed by Dr B Walker, Metabolic Unit, Western General Hospital, Edinburgh, 1998.

Reference: Bart's Endocrine Protocols Churchill Livingstone 1995

Dr B Walker revised protocol May 2000.