SHORT SYNACTHEN TEST

INDICATION

1. Used in the diagnosis of hypoadrenalism as a screening test.
2. It is an increasingly used alternative to the insulin tolerance test to diagnose secondary hypoadrenalism due to pituitary hypofunction. However, it should *not* be used in the early post-operative assessment of the hypothalamic-pituitary-adrenal axis as response may be normal (an insulin tolerance/glucagon stress test should be used instead).
3. May also be used to ascertain that the adrenals are functioning normally after a prolonged course of corticosteroids, or after suppression by Cushing's syndrome (e.g. after removal of a unilateral Cushing's adrenal adenoma).
4. Diagnosis of 21-hydroxylase deficiency and other causes of adrenal hyperplasia.

CONTRAINDICATIONS

Definitely not required for assessment of hypoadrenalism if random cortisol >=430 nmol/L assuming not on hydrocortisone or oestrogen containing medication at the time of test.

SIDE EFFECTS

- Idiosyncratic reaction to synacthen.

PREPARATION

- If on hydrocortisone the final dose of hydrocortisone should be at midday, on the day prior to the test.
- HRT or any oestrogen should be discontinued for 6 weeks before the test.
- In patients in whom the test is being used to screen for 21-hydroxylase deficiency, the test should be done in the follicular phase because progesterone levels rise substantially in the luteal phase, and there is some (albeit very little)cross reaction between the 17-OHP assay and the Progesterone assay.
- Admission is required if there is a risk of Addisonian crisis (rare).
- 18-20g cannula.
- Saline flush.
- 10ml syringes x 4.
- 3 red or yellow top Vacutainers for cortisol (same samples for 17-OH progesterone)1 EDTA tube (purple top Vacutainer) for ACTH basal sample + ice.
- 1 ampoule of 250 micrograms tetracosactrin (Synacthen) for adults or children >= 2 years; 15 µg/kg for infants, and 125 µg for children <2 y of age.

METHOD

1. 0900h: take blood for cortisol (red top Vacutainer) and ACTH (purple top Vacutainer, on ice to lab immediately).
2. Give 250 micrograms tetracosactride i.v.
3. 0930h: Take blood for cortisol.
4. 1000h: Take blood for cortisol.
5. For the diagnosis of congenital adrenal hyperplasia the samples taken for cortisol are also analysed for 17-OH progesterone to exclude 21-hydroxylase deficiency. In these cases an extra red top Vacutainer may be needed (for adults) or green top Vacutainer for paediatrics for each time point.

Interpretation: **Normal response:** - An increase of serum cortisol post-synacthen to at least 430 nmol/L at 30 min, irrespective of the baseline value.

A normal response merely excludes adrenal hypofunction but does not exclude hypothalamic or hypopituitary dysfunction.

Impaired response: - please contact Consultant Endocrinologist for advice.

Enquires . If you have any enquiries please contact the laboratory 01622 224465 Mon-Fri 9.00 am – 5.30 pm.

References

1. Bornstein SR, Allolio B, Arlt W, et al. Diagnosis and Treatment of Primary Adrenal Insufficiency: An Endocrine Society Clinical Practice Guideline. J Clin Endocrinol Metab 2016;101:364–89