

Arginine Infusion Test Protocol

Indication:

Not useful as screening test but useful to confirm growth hormone deficiency in patients with loss of other Pituitary hormones and a low IGF1 level.

May also be useful in combination with another stimulatory test if patient unable to undergo Insulin Tolerance Test eg patient with epilepsy.

Contraindications:

Renal failure

Liver failure

Precautions:

Drug interactions: Oestrogen and progesterone pill - Spironolactone

Procedure:

One week before test:

- Require accurate weight of patient. Check recent normal U+e's and LFT's. If in doubt check with Registrar on-call.
- Request Registrar on-call to calculate and prescribe dose of Arginine.
- Dose: Arginine 0.5g per kg of body weight – up to a dose of 30g Arginine.
- Inform Pharmacy & send prescription. Inform lab..
- Give patient information sheet. Arrange appointment for 08.30am.

Patient attends fasting.

- Hormone replacement tablets ie steroids, thyroxine should be taken as normal but all other tablets withheld until after the test.
- Warn patient of side effects which can include headache, flushing, sickness and bloating.
- Two IV cannula (one in each arm) required. Pink for IV infusion, green for sampling.
- Prepare Arginine infusion. Arginine usually given in 100ml normal saline. Two nurses required to check prescription. One nurse dedicated to test. Use minute minder. Record any side effects reported by patient on day case sheet – see sample day case sheet attached.
- Blood volumes and tubes: Growth Hormone – 2.7 orange Li.hep. tube
 - IGF1 white (plain) tube – 9mls.
- Sample form attached. Samples may be batched and sent with form on completion of test.

Sampling:

- 10 minutes after cannulation collect baseline samples for growth hormone and IGF1.
- Start infusion using pink cannula.
- Infusion given over 30 minutes. Note start time = time 0. Once completed remove this cannula.
- Blood for growth hormone & IGF1 at +30, +60, +90 and +120 (from green cannula)

- Flush IV cannula with sodium chloride 0.9% following collection of samples. Using 2ml
- Syringe collect and discard 0.5mls blood prior to collection of samples.
- Remove cannula 30 minutes after collection of +120 sample. Patient is allowed food and fluid.

Interpretation:

A normal range consists of a peak value of at least 9ng/ml of growth hormone or a rise of 5ng/ml from baseline. This usually occurs at 60-90 minutes. Responses tend to be higher in females than men. Response may be absent in obese or patient with hypothyroidism. False negative rate of 30-35%, ie a normal response is seen in only 65 to 75% of normal subjects but sensitivity and specificity of test increases in patients showing deficiency in other hormones.