**Arginine Stimulation Test for Growth Hormone**

**Principle**

Arginine stimulates growth hormone secretion in healthy individuals but response will be impaired in hypopituitarism.

**Indications**

Investigation of growth hormone reserve in children and as a secondary confirmatory test in adults or in cases where the Insulin tolerance test and glucagon test are contra-indicated.

**Side effects and Precautions**

Some adolescents may need sex hormone priming before this test. Please check with the requesting doctor.

Arginine can cause nausea and some irritation at the infusion site and the patient should be made aware of this.

Arginine can cause vasospasm so sampling may be difficult if only one cannula is used. For this reason large veins should be selected.

**Requirements**

- Ensure the arginine L-arginine hydrochloride 10% in 100-200mls (0.5g/kg – max dose 30 g) normal saline is prescribed and ordered from pharmacy prior to the patient's admission.
- 6 brown top serum tubes

**Procedure**

**PATIENT PREPARATION**

- If the patient is on growth hormone replacement, this should be stopped for one month before testing.
- Fast the patient overnight before the test (water is allowed).
- Weigh the patient and document accurately in the medical notes.
THE TEST

Insert IV cannulas in both right and left arms - one to give the infusion and one to take blood from.

<table>
<thead>
<tr>
<th>Minutes</th>
<th>Procedure</th>
<th>Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>-30</td>
<td>Insert an indwelling cannula into each arm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Allow the patient to rest for at least 30 mins.</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>Take basal sample for growth hormone.</td>
<td>1 x brown top serum tube</td>
</tr>
<tr>
<td>0</td>
<td>Infuse L-arginine hydrochloride 10% in 100-200mls normal saline over 30 mins at a dose of 0.5g/kg (max 30g in 100-200mls Normal Saline)</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Take sample for growth hormone</td>
<td>1 x brown top serum tube</td>
</tr>
<tr>
<td>60</td>
<td>Take sample for growth hormone</td>
<td>1 x brown top serum tube</td>
</tr>
<tr>
<td>90</td>
<td>Take sample for growth hormone</td>
<td>1 x brown top serum tube</td>
</tr>
<tr>
<td>120</td>
<td>Take sample for growth hormone</td>
<td>1 x brown top serum tube</td>
</tr>
</tbody>
</table>

**Remember:**
- Clearly label samples with patient details and times
- Use the specific DFT protocol request forms
- Send all samples together to lab

**Interpretation of results**

**Adults:** GH should rise to at least 5.3 µg/L. GH levels of <3 µg/L suggest severe growth hormone deficiency