

## LHRH STIMULATION TEST – PAEDIATRIC PROTOCOL

### INTRODUCTION

This test is used to assess the ability of the anterior pituitary to secrete gonadotrophins (LH and FSH) in response to LHRH stimulation. Indications for use are in investigation of possible gonadotrophin deficiency, and precocious or delayed puberty.

The LHRH test may be combined with a HCG stimulation test on day one (see pro-forma for HCG) to assess testicular response and function.

### CONTRAINDICATIONS AND SIDE EFFECTS

None.

### PATIENT PREPARATION

None; the child does not need to fast.

### PRECAUTIONS AND PATIENT CARE DURING TEST

No particular precautions. If HCG test is also required then the LHRH test **must** be completed before HCG is given, since HCG interferes with LH and FSH secretion (please use HCG stimulation protocol and proforma if undertaking combined LHRH and HCG testing).

### PROTOCOL

Please use separate pro-forma to record samples taken and timing.

1. Apply Ametop cream to a suitable cannulation site and wait for at least 45 minutes before cannulation.
2. Cannulate the child and wait 30 minutes before taking baseline (time 0) samples.
3. Take baseline (time 0) blood samples as per proforma for LH, FSH, SHBG and Oestradiol/Testosterone.
4. Administer the LHRH i.v. 100 mcg.
5. Take second set (time 30 min) of blood samples for LH and FSH.
6. Take final set (time 60 min) of blood samples for LH, FSH.

### INTERPRETATION

This test should be interpreted in the clinical context, including pubertal staging, testicular volume/ovarian ultrasound.

A normal post-pubertal response is a peak in LH and FSH levels at either 30 or 60 minutes, with LH exceeding 10 IU/L and FSH exceeding 2 IU/L.

Pre-pubertal children has no response to GnRH whereas in precocious puberty the pituitary is primed and a response is seen.

An exaggerated response of LH and FSH to LHRH (when basal gonadotrophins are also usually elevated) indicates primary gonadal failure. Pituitary failure would give a flat response but is not diagnostic. Also hypothalamic abnormalities give a delayed or exaggerated response but are not excluded by a normal response.

**CONTACTS**

Basildon Hospital Biochemists: ext. 3029 / 3095 / 3539

Southend Hospital Biochemist: ext. 8795

**REFERENCES**

1. Maidstone District General Hospital Protocol
2. Royal London Hospital Protocol
3. Ogilvy-Stuart A and Midgley P. Practical Neonatal Endocrinology, Cambridge Clinical Guides 2006
4. Imperial endocrinology handbook. <http://imperialendo.co.uk/Bible2018.pdf>. (accessed 25/09/2020)