

## Gonadotrophin Releasing Hormone Test – Summary Clinical Guideline

Reference no.: CHISCG21

**THIS TEST IS ONLY TO BE PERFORMED FOLLOWING DISCUSSION WITH A  
CONSULTANT BIOCHEMIST OR ENDOCRINOLOGIST**

### 1. Introduction

Gonadotrophin Releasing Hormone (GnRH), previously known as LHRH, is a decapeptide which acts to stimulate the release of LH and FSH from the anterior pituitary gland. It is synthesised in the hypothalamus and transported to the pituitary via the hypothalamic-hypophyseal portal system.

Bolus intravenous administration of GnRH in the normal subject leads to a rise in serum LH and FSH concentration, peak levels being reached at about 20 minutes.

### 2. Guideline

#### INDICATIONS

Further investigation of possible gonadotrophin deficiency, and of delayed puberty.

#### CONTRAINDICATIONS

Allergy to GnRH (rare), although hypersensitivity has been reported in multidose administration.

#### SIDE EFFECTS

Side effects are rare. Isolated cases of abdominal pain, nausea, light-headedness, headache and increased menstrual bleeding have been reported.

#### PREPARATION

##### Planning

The test can be carried out at any time

##### Patient

There are no special requirements for the patient, fasting is unnecessary.

##### Equipment

- GnRH available as 100 micrograms per vial, obtainable from Pharmacy as Gonadorelin
- 3 SST (yellow top) blood tubes

#### PROCEDURE

The GnRH test procedure is described in the table below. Samples must be clearly labelled with patient name, date and time, e.g. 09:30.

Time	Blood Sample
0 minutes	Take a blood sample, minimum volume 5 mL, into a SST tube (yellow top) for LH and FSH. Label sample with patients name and time of sample
0 minutes:	Inject 100 micrograms of GnRH as a single bolus intravenous injection
20 minutes	Take a blood sample, minimum volume 5 mL, into a SST tube (yellow top) for LH and FSH. Label sample with patients name and time of sample
60 minutes	Take a blood sample, minimum volume 5 mL, into a SST tube (yellow top) for LH and FSH. Label sample with patients name and time of sample

Send all three samples, together with one completed Chemical Pathology form stating that this a GNRH test, to the Chemical Pathology Department.

### INTERPRETATION

Normal basal reference values in prepubertal children are:

LH <2.0 IU/L

FSH <2.0 IU/L

Following GnRH, the response may be considered normal if the basal values are in the reference range and there is at least a doubling at 20 min for both LH and FSH.

The response varies throughout the menstrual cycle: early (day 4) < late follicular (day 11) = 'luteal' (day 21), max response occurs at the mid-cycle (day 14).

An exaggerated response is seen in primary and secondary gonadal failure.

A flat response in gonadotrophins (increase <5 IU/L) occurs in prepubertal children and with pituitary and/or hypothalamic disease. However, a normal response does NOT exclude pituitary or hypothalamic disease since the response will be affected by the exact anatomy of the disorder.

### TURNAROUND TIME

3 days

### NOTES

This test is frequently combined with insulin stress (in which case patient is fasted) and TRH tests.