Follicle Stimulating Hormone (FSH) - Paediatrics

Assessment of the hypothalamic-pituitary-gonadal axis**.**

Pseudonyms: none

General information

Collection container:

Lithium heparin plasma (Sarstedt orange top, 4.9 mL adults / 1.2 mL paediatrics)

Serum (Sarstedt brown top 4.9 mL adults / white top 1.2 mL paediatrics).

Type and volume of sample:

1.0 mL whole blood is required, as a minimum volume, for the analysis of LH and FSH.

Specimen transport/special precautions:

The tube should be thoroughly mixed before transport to the lab.

Laboratory information

Method principle:

The assay is an automated two-site chemiluminescence immunoassay method.

Biological reference ranges:

0-10 years		<3.0 IU/L
Post pubertal male		1.5-12.4 IU/L
Post pubertal female	Follicular	3.5-12.5 IU/L
	Mid-cycle	4.7-21.5 IU/L
	Luteal	1.7-7.7 IU
Menopausal		>30 IU/L

Concentration of serum LH and FSH (AutoDELFIA assays), expressed as mean and 5th and 95th percentiles, in normal subjects at different pubertal stages (n=316 for basal levels, n=106 for GnRH stimulated levels)

Pubertal Stage	Males				Females			
	Basal		GnRH-stimulated peak		Basal		GnRH-stimulated peak	
	LH (IU/L)	FSH (IU/L)	LH (IU/L)	FSH (IU/L)	LH (IU/L)	FSH (IU/L)	LH (IU/L)	FSH (IU/L)
$T1_1$ (<2.6 yr)	<0.6	1.0 (1.0-1.4)	N/A	N/A	<0.6	3.7 (1.0-8.3)	N/A	N/A
$T1_2$	<0.6	1.1 (1.1-1.6)	2.2 (1.1-3.3)	5.7 (2.4-10.6)	<0.6	1.6 (1.0-3.4)	2.1 (0.6-4.2)	11.7 (1.9-27.1)
TII	1.3 (0.6-2.7)	1.8 (1.0-4.3)	15.6 (1.9-31.0)	3.6 (1.4-10.2)	1.0 (0.6-?)	2.3 (1.0-4.8)	5.3 (0.6-12.5)	6.5 (1.8-13.2)
TIII	1.4 (0.6-2.5)	2.1 (1.0-5.5)	16.1 (7.3-32.0)	4.2 (1.1-13.0)	2.9 (0.6-5.0)	3.9 (2.6-5.1)	21.0 (14.6-31.0)	7.9 (5.9-12.0)
TIV	1.6 (0.7-2.5)	2.1 (1.0-5.2)	17.3 (12.0-28.0)	4.8 (1.7-12.0)	3.1 (1.0-6.0)	4.0 (1.5-7.2)	26.2 (10.4-54.5)	8.6 (4.0-18.0)
TV	4.7 (2.4-8.2)	3.2 (1.2-5.7)	28.9 (9.5-56.3)	5.3 (1.8-12.0)	5.7 (0.6-15.4)	4.1 (1.0-7.3)	37.9 (9.7-114.0)	9.2 (2.8-18.8)

Turnaround time:

Same day

Clinical information

Follicle Stimulating Hormone (FSH or hFSH) is a glycoprotein synthesised and secreted by the anterior pituitary. In women it functions to stimulate follicular maturation during the follicular phase of the normal menstrual cycle and sufficient production is essential for a normal cycle. In men the hormone stimulates spermatogenesis. FSH production in childhood is strongly inhibited resulting in very low levels until puberty when secretion increases to adult levels. This, in turn, causes elevation in gonadal steroid production leading to the development of secondary sexual characteristics.

Levels in adult males are relatively constant under feedback control, but levels in adult females undergo cyclical variation, reaching very high values during the mid-cycle peak. After the menopause levels are

persistently elevated, clearly exceeding the levels reached during mid-cycle. Since normal levels in childhood are low, stimulation tests using LHRH (GnRH) are needed to investigate hypofunction.

For interpretation of these results please see the online Dynamic Function Test Handbook.

Factors known to significantly affect the results

- Samples collected into EDTA and citrate must not be used. This is due to their chelating action upon the Ruthenium used within the assay.

Grossly haemolysed samples are unsuitable for analysis.

(Last updated November 2019)