Mrs. MANGAI P
VIJAYA NAGAR, ULLAGARAM, CHENNAI
Tel No : 7907209007
PID NO: P1572200022697
Age: 26.0 Year(s) Sex: Female

Reference: Dr.RAMYA K S
Sample Collected At:
DBP-Dr.S.Balasubramaniam
No:2,Officer's Colony,100Ft Bypass Road,Velachery,Chennai-600042
Processing Location:- Metropolis Healthcare Ltd, #3, Jagannathan Road, Nungambakkam, Chennai - 600 034

VID: 220157000036510
Registered On:
14/09/2022 12:06 PM
Collected On:
14/09/2022 12:09PM
Reported On:
14/09/2022 06:45 PM

Investigation	Observed Value	Unit	Biological Reference Interval
FSH - Follicle Stimulating Hormone (Serum,ECLIA)	9.28	mIU/mL	Normal Menstruating Women Follicular Phase : 1.4-9.9 Mid Cycle Phase : 0.2-17.2 Luteal Phase : 1.1-9.2 Post Menopausal : 19.3-100.6

Interpretation:
FSH is a glycoprotein hormone secreted by Anterior pituitary gland and regulates the development, growth, pubertal maturation, and reproductive processes of the body. In women, FSH helps control the menstrual cycle and stimulates the growth of eggs in the ovaries. FSH levels in women change throughout the menstrual cycle, with the highest levels happening just before an egg is released by the ovary. In men, FSH helps control the production of sperm. Normally, FSH levels in men do not change very much.

In men, FSH helps control the production of sperm. Normally, FSH levels in men do not change very much.

- FSH is increased in Luteal Phase of Menstrual cycle, Ovarian hyper stimulation syndrome, Complete testicular feminization syndrome, Primary hypogonadism (anorchia, testicular failure, menopause), Precocious puberty (either idiopathic or secondary to a central nervous system lesion), perimenopausal, post menopause, hormonal therapy, heavy smokers or drinkers or people with a vitamin D deficiency
- Normal to decreased FSH in: Polycystic ovary disease in females, Pituitary gland tumor or adenoma, Secondary hypogonadism, Hyperprolactinemia, very underweight

Clinical Utility:

- An adjunct in the evaluation of menstrual irregularities
- To monitor ovulation in IVF treatment
- Diagnosing pituitary disorders
- Evaluating patients with suspected hypogonadism

Note:

- Patients on Biotin supplement may have interference in some immunoassays. With individuals taking high dose Biotin (more than 5 mg per day) supplements, at least 8-hour wait time before blood draw is recommended.
- Because of episodic, circadian and cyclic nature of FSH secretion, clinical evaluations may require determinations in pooled multiple serial samples.

Associated Tests: FSH-LH Testosterone (F0062), AMH- Mullerian inhibiting substance (A0417), Inhibin B (I0274)

Reference:

1. Package insert
2. Wallach's interpretation of diagnostic tests, Ed11, 2020
3. Arch Pathol Lab Med—Vol 141, November 2017
4. Tietz fundamentals of clinical chemistry 6th edition. Burtis CA, Ashwood ER, Bruns DE, 2008.

E2 Estradiol Serum
(Serum,ECLIA)

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Investigation	Observed Value	Unit	Biological Reference Interval
E2 - Estradiol level	48.3	pg/mL	Menstrual Cycle : Follicular phase: 21-251 Midcycle peak: 38-649 Luteal phase: 21-312 Post Menopausal Females : not on HRT : <= 28 on HRT: <= 144

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Investigation	Observed Value	Unit	Biological Reference Interval
AMH Mullerian Inhibiting Substance (Serum,ECLIA)	2.90	ng/mL	0.9-9.5

Interpretation :
AMH is a dimeric glycoprotein hormone belonging to the TGF-ß family, produced by Sertoli cells of testis in males and by ovarian follicular granulosa cells upto antral stage in females.

IN MALES- it is used to evaluate testicular presence and function in infants with intersex conditions or ambiguous genitalia, and to distinguish between cryptorchidism and anorchia in males.

IN FEMALES-During reproductive age, follicular AMH production begins during the primary stage, peaks in preantral stage & has influence on follicular sensitivity to FSH which is important in selection for follicular dominance. AMH levels thus represent the pool or number of primordial follicles but not the quality of oocytes.AMH doesnot vary significantly during menstrual cycle & hence can be measured independently of day of cycle.

- Polycystic ovarian syndrome can elevate AMH 2 to 5 fold higher than age-specific reference ranges & predict anovulatory, irregular cycles.Ovarian tumours like Granulosa cell tumour are often associated with higher AMH.
- Obese women are often associated with diminished ovarian reserve & can have 65% lower mean AMH levels than non-obese women.
- A combination of Age, Ultrasound markers -ovarian volume and Antral follicle count, AMH level & FSH level are useful for optimal assessment of ovarian reserve.Studies in various fertility clinics are ongoing to establish optimal AMH concentrations for predicting response to invitro fertilization, however, given below is suggested interpretative reference-

AMH levels (ng/ml)	Suggested patient Categorization for fertility based on AMH for age group (20 to 45 yrs)	Anticipated Antral Follicle Counts	Anticipated FSH levels (day 3)	Anticipated Response to IVF/COH cycle
Below 0.3	Very Low	Below 4	Above 20	Negligible/poor
0.3 to 2.19	Low	4-10	Usually 16-20	Reduced
2.19 to 4	Satisfactory	11-25	Within reference range or Between 11-15	Safe/Normal
Above 4	Optimal	Upto 30 & Above	Within reference range, often between 10-15 or above 15	Possibly Excessive

Conversion of AMH levels from ng/ml to pmol/L can be performed by using equation- 1 ng/ml = 7.14 pmol/L.

References-

- The Correlations of Anti-Mullerian Hormone, Follicle-Stimulating Hormone and Antral Follicle Count in Different Age Groups of Infertile Women. Royan Institute International Journal of Fertility and Sterility Vol 8, No 4, Jan-Mar 2015, Pages: 393-398
- Age-specific serum antimullerian hormone levels in women with and without polycystic ovary syndrome. Fertility and Sterility Vol. 102, No. 1, July 2014
- Anti-Mullerian Hormone: A New Marker of Ovarian Function. J Obstet Gynaecol India. 2014 Apr; 64(2): 130–133.
- AMH- ovarian reserve marker.Fertil steril. 2005; 83(4): 979-87. Human Reprod. 2007 Mar; 22(3).
- Grinspon & Ray: AMH & Sertoli cell function in paediatrics. Horm Res Paediatr 73: 81-92, 2010.

-- End of Report --

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