

Inhibin B

Clinical Background

- Inhibins are heterodimeric polypeptide hormones that inhibit gonadotrophin synthesis of follicular stimulating hormone (FSH). These nonsteroidal hormones are important in reproduction. The fully processed form of the inhibin has two distinct chains (α and β) that are linked by disulfide bridges.
- In males, inhibin B is produced by the Sertoli cells of the testis, while in females, the hormone is produced by the granulosa cells of the ovary. ELISA is used in the measurement of inhibin B as an endocrine marker for monitoring male and female gonadal function. The Inhibin B assay uses the highly characterized pair of antibodies that specifically recognize only the functional inhibin B molecule and do not measure the free α -subunit forms present in biological fluids.

Pathophysiology

- In males, inhibin B increases immediately after birth and then decreases to minimal levels before puberty, when it again increases to higher levels.
- In females, inhibin B increases during puberty. Levels then vary according to the phase of the menstrual cycle.
- After menopause, inhibin B decreases to only minimal levels.

Indications for Ordering

- Infertility workup in both males and females:
 - Predict ovarian reserve and the ovary response associated with ovulation induction for in vitro fertilization (IVF).
 - Differential diagnosis of cryptorchidism versus anorchia.
- Tumor marker for Sertoli or granulosa cell tumor.

Interpretation

- Hypertropic hypergonadism can be defined by the following:
 - Males: >305 pg/mL
 - Females: Premenopausal: >255 pg/mL
Postmenopausal: >30 pg/mL

- On day 3 of the menstrual cycle, a value of >45 pg/mL indicates normal ovarian reserve.
- A value of <45 pg/mL may indicate a reduced ovarian reserve; with up to 70 percent fewer pregnancies and 10 fold increase in spontaneous abortion.
- Low values in either sex support a diagnosis of hypogonadotropic hypogonadism.

Limitations

- For ovarian reserve, draw on day three of menstrual cycle.
- For other indications, specimen can be drawn at any time.

Methodology

- ELISA

References

1. Welt, C, et al. Activins, inhibins, and follistatins: from endocrinology to signaling. A paradigm for the new millennium. *Exp Biol Med* 2002;9:724–52.
2. Sebesid A, et al. Serum inhibin A and inhibin B in healthy prepubertal, pubertal, and adolescent girls and adult women: relation to age, stage of puberty, menstrual cycle, follicle-stimulating hormone, Luteinizing hormone and estradiol levels. *J Clin Endo Metabolism* 2000;85:1634–40.
3. Kumanov P, et al. Inhibin B is a better marker of spermatogenesis than other hormones in the evaluation of male factor infertility. *Fertil Steril* 2006;86(2):332–8.
4. Lockwood G. The diagnostic value of inhibin in infertility evaluation. *Semin Reprod Med* 2004;22(3):195–208.

Test Information

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For specific collection, transport, and testing information, refer to the ARUP website at www.aruplab.com.

For information on test selection, ordering, and interpretation, refer to ARUP Consult[®] at www.arupconsult.com.