SydPath
ST VINCENT'S PATHOLOGY

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PROGESTERONE INFORMATION SHEET

PHYSIOLOGY

Progesterone is a steroid hormone secreted by the corpus luteum in response to LH secreted by the pituitary and also in larger amounts by the placenta during pregnancy. During reproductive years there is a pronounced change in concentration throughout the menstrual cycle with low concentrations in the follicular phase and a marked rise in the luteal phase to a peak approximately 7 days prior to the next menstrual period. It should be noted that there is a variation of over +-/ 20% in progesterone concentrations during any single day and between days in the same patient. During pregnancy, progesterone concentrations rise continually from the mid-luteal peak of the cycle in which conception occurs until full term is reached.

INDICATIONS FOR TESTING

The main clinical purpose for measuring serum progesterone is assessment of ovulation. A raised "mid-luteal" progesterone is a good marker of ovulation in that menstrual cycle. The timing of the mid-luteal sample is best calculated as 7 days prior to the next expected menstrual period. If the cycle is irregular two samples one week apart in the second half of the cycle may be a suitable strategy. Progesterone may have other indications in specific clinical circumstances.

INTERPRETATION

A raised mid-luteal progesterone is taken as good evidence of ovulation. There is some variation in the literature concerning the exact values on which to base this assessment. Some of this uncertainty may relates to variation within individual patients.

MID-LUTEAL PROGESTERONE:

>20 nmol/L - indicates ovulation likely
A lower value may be due to ovulation not occurring or mistiming of the test.
Some authors have suggested the following interpretation (Williams 2003):
>30 nmol/L - indicates ovulation confirmed
16 - 30 nmol/L - ovulation possible
<16 nmol/L - either anovulation or inappropriate timing of the blood test.

GENERAL REFERENCE INTERVALS:

Males: <0.6 nmol/L

Females: Follicular phase: < 3 nmol/L
Luteal phase: 5 - 90 nmol/L (includes rise and fall phase of mid luteal cycle)
Mid luteal: >20 nmol/L
Post menopausal: <0.6 nmol/L
Pregnancy: 20 - 3,000 nmol/L (increasing from conception to delivery)

MEASUREMENT

Serum progesterone is measured in routine venous serum or heparin plasma collections with results available the same day as collection. SydPath uses the Roche Modular system for measurements.

REFERENCES

- Robert Norman. Fertility testing. Australian Prescriber 2002;25:38-40
- Williams C, Giannopoulos T, Sherriff EA. *Best Practice No 170* : Investigation of infertility with the emphasis on laboratory testing and with reference to radiological imaging. *J. Clin Pathol 2003;56:261-267*