Sonoendocrinology of menstrual cycle

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Menstrual cycle refers to the periodic monthly changes that occur in a female's body in order to prepare her for pregnancy. It consists of 2 main cycles: Ovarian and uterine and consists of four phases: Menses; Follicular/ Proliferative; Ovulatory and Luteal/Secretory. There's a dynamic interplay between hormones and the female reproductive system. The hormones of concern include gonadotropins like Luteinising Hormone and Follicular Stimulating Hormone, ovarian hormones like progesterone, estrogen and androgens, and other hormones like thyroxin and prolactin. The physiological changes and extent of vascularization that occur can be understood by B-Mode of ultrasound and also by 3-D power Doppler. From ultrasound point of view three major scans are done: Baseline Scan: At early proliferative phase (day 2/3); Pretrigger Scan: Depending upon follicular maturity and Mid-Luteal Scan: At about eight days after ovulation. Ultrasound acts as a tool that provides with an almost precise evaluation of hormonal changes during the cycle with or without stimulation.

Recent Publications:

1. Raju G A, Chavan R, Deendayal M, et al (2013) Luteinizing hormone and follicle stimulating hormone synergy: a review of role in controlled ovarian hyper stimulation. J Hum Reprod Sci. 6(4):227-34.
2. Haadsma M L, Bukman A, Groen H, et al. (2007) The number of small antral follicles (2-6mm) determines the outcome of endocrine ovarian reserve tests in a sub-fertile population. Hum Reprod. 22(7):1925-31.
3. Van Rooij I A, Broekmans F J, te Velde E R, et al. (2002) Serum Anti Mullerian hormone levels: a novel measure of ovarian reserve. Hum Reprod. 17(12):3065-71.
4. Campbell S, Bourne T, Waterstone J, et al. (1993) Transvaginal color blood flow imaging of the preovulatory follicle. Fertil Steril. 60(3):433-8.
5. Tan S L, Zaidi J, Campbell S, et al. (1996) Blood flow changes in the ovarian and uterine arteries during the normal menstrual cycle. Am J Obstret Gynecol. 175(3 Pt 1):625-31.

Biography

Jaanvi Sana Chhabra is a second-year Medical graduate at the prestigious medical Institute, Lady Harding Medical College in New Delhi. She has been interested in human physiology especially female physiology to understand the changes in the endocrine system and its relationship with various imaging modalities especially ultrasound.

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