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The efficacy of measuring intercycle variability of FSH, LH, FSH and LH ratios and E₂ in predicting ovarian reserve in normal women age 40-45years

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The ability of women to conceive declines with age. But age related decline in reproductive potential are exclusively within ovarian potential is referred to as ovarian reserve. In order to investigate the clinical efficacy of ovarian steroid hormone in predicting reproductive aging, we measured serum levels of follicle stimulating hormone(FSH), luteinizing hormone(LH) and estradiol(E₂) and its intra- and intercycle variability in healthy female volunteers with regular menstrual cycle between age 40 to 45 in two consecutive cycles.

Daily serum samples were obtained on cycle days 1-4. Initially we evaluate above factors between each menstrual cycle and after that compacted day 1-4. As one variable and re-evaluated the difference between cycles as a group.

LH showed marked intercycle variability ($P < 0.0001$), But no difference were noted across study days and cycles. FSH showed no difference between study cycles in both compact day ($P = 0.541$) and all individual study days and highest value was noted on day 3 ($P = 0.98$). Also no difference was noted among FSH concentration in day 1-4 in both cycles. Even though FSH and LH ratios were not different among study days, there showed marked difference between cycles. E₂ concentrations were not to have intercycle variability ($P = 0.228$) but their significance were next to FSH. E₂ values of day 4 were increased significantly compared to day 1-3 in both study cycles ($P = 0.0096, 0.004$ respectively). Increments of FSH were not collated with E₂ in study cycles.

Our data lead us to the conclusion that flexibility measuring in FSH can be introductive aging. But to assess the predictive value of both factors and for clinical application, further investigation should be followed.

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3-Dimensional Culture System of Endometrial Cells for Studying the Human Implantation Mechanism

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In order to study the mechanisms involved in implantation many methods such as in vitro cultures of endometrial cells have been attempted. However, a disadvantage is that two dimensional cultures of stromal and epithelial cells do not have the ability to differentiate, and therefore cannot be reproduced in the same manner as in vivo endometrium. The object of this study is to establish an endometrial model for three dimensional culture of endometrial cells which are both morphologically and functionally identical to in vivo endometrium. Endometrial tissues obtained after hysterectomies were cut into thin slices and treated with collagenase and Trypsin-EDTA, after which the stromal cells and the epithelial cells were separated. The separated cells were cultured for 24 hours in DMEM media containing 10% FCS, 100nM progesterone, and 1nM estradiol. The cultured stromal cells were mixed with collagen gel and solidified, after which it was covered with matrigel. Epithelial cells were inoculated on the top and then cultured for 3 days. The three dimensionally cultured endometrial cells were stained for integrin $\alpha 1, \alpha 4, \beta 3$, and cyclooxygenase-1, -2 by immunohistochemistry which all showed strong expression, and the electron microscopy showed the formation of microvilli, tight junctions and pinopods. Studies are currently under way utilizing this three dimensional culture model to ascertain the interaction between the embryo and human endometrial cells at the time of implantation, and it is thought that further studies into a new culture environment which would allow longer periods of culture will be necessary.

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