

Morphometric study of GnRH analogue, HMG and HCG effects on ultrastructure of human endometrial glandular epithelium in early luteal phase

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Abstract

GnRH analogue, HMG and HCG administration are common protocol for ovulation induction in assisted reproductive technology (ART). Since implantation rate in stimulated ART cycles is lower than unstimulated cycles and as endometrium plays an important role in embryo receptivity, effect of this protocol on the ultrastructure of human endometrial glandular epithelium was studied at LH+4 (embryo transfer time).

In this research endometrial biopsies were obtained from fertile women as well as infertile women who had undergone this protocol at LH+4. Quantitative and qualitative studies on endometrial glandular epithelium was performed by transmission electron microscopy (TEM) and morphometry and the results were statistically compared between the two groups.

Qualitative results revealed presence of nuclear channel system (NCS), sub vacuole of glycogen and giant mitochondria (GM) in both groups. Similarly, in quantitative analysis, the volume fractions (Vv) of glycogen, mitochondria and rough endoplasmic reticulum to cell and also the Vv of euchromatin to nucleus were statistically not different ($P > 0.05$).

These results suggest that ovulation induction by GnRH analogue, HMG and HCG are not associated with advanced endometrial development and consequently, embryo transfer at this stage (before advanced endometrial development which occurs normally at LH+7 to LH+10) may cause a lower rate of implantation.

Keywords: Endometrial development, GnRH agonist, HMG, HCG and Morphometry.

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