Poster

In vivo study of the effect of Ulipristal Acetate (UPA) on endometrial receptivity

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ABSTRACT

Motivation: Ulipristal Acetate (UPA) is a drug used as an emergency contraceptive (EA). Its mechanism of action is associated with suppression of ovulation, although its impact on endometrial receptivity in embryonic implantation cannot be ruled out. In this study, the effect of UPA is evaluated by gene expression using a panel of 192 genes related to the endometrial receptivity. The comparison between the gene expression profile in 4 patients who received 30 mg of UPA on LH+2 day with their baseline state and one month post treatment could shed light on the receptivity and the implantation process

Methods: Three consecutive cycles of 4 healthy patients surgically sterilized were analyzed. The first cycle without the intake of UPA (B), the second cycle with intake of 30 mg of UPA on the day LH+2 (T), and the third cycle one month after treatment and without the intake of UPA (PT). In all cycles the endometrial biopsy was taken on day LH+6 to 8. Gene expression of each sample was determined by quantitative PCR using a panel of 192 genes related to endometrial receptivity. Fold-Change (FC) was calculated to determine the differential expression of genes in different conditions regarding to the control cycle. Statistical analyzes were performed using SPSS and functional enrichment analysis GO (Gene Ontology).

Results: The FC data indicate a repression of the genes in the T regarding to B cycle. Statistical analysis showed that there are 11 genes that explain the variance between B, T and PT and also, the three conditions are well differentiated from each other. As for the FC, those genes with FC> 0.2 in absolute value were considered. GO enrichment showed that the genes that are deregulated in the T cycle with respect to B are associated with the response to ions such as zinc, copper, metals and aging. The PT-B comparison shows deregulation of transport genes and ion homeostasis and tissue remodeling. PT-T showed deregulation of sexual reproduction genes and positive growth regulation

Conclusions: There is repression of the genes after treatment with UPA, the transcriptomic profiles of the three populations B, T and PT are different from each other, with the profile of T being the furthest, and B and PT the closest to each other. This would suggest that the administration of UPA in LH+2 would have a repressive effect on genes associated with uterine receptivity (mostly involved in ionic transport). This effect seems to persist until the following month.

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