FSH DIRECTLY DOWN-REGULATED HUMAN ENDOMETRIAL AQP8, AND RESULTED IN DECREASED ENDOMETRIAL RECEPTIVITY VIA DISREGULATION OF ENDOMETRIAL RECEPTIVE FACTORS, INCLUDING LIF AND OLFM1. D. Zhang, G. Xu, J. Li, Y. Zhu, F. Fu, J. Sheng. Department of Reproductive Endocrinology, Women’s Hospital, School of Medicine, Zhejiang University, Hangzhou, Zhejiang Province, China.

OBJECTIVE: To investigate the direct effects and mechanism of FSH on human endometrial receptivity.

DESIGN: A prospective clinical and experimental study.

MATERIALS AND METHODS: We collected 15 endometrial samples in implantation window after ovarian stimulation (OS) with exogenous FSH, and 40 samples of natural cycle as control. We detected FSHR expression in human endometrial tissue and Ishikawa cell by RT-PCR and following sequencing. Western blotting, immunohistochemistry and immunofluorescence. We constructed the mouse blastocyst-adhesion model and JAr adhesion model, assessed the effect of PCMB (AQP inhibitor) pre-treatment on blastocyst adhesion, measured AQP8, receptive factors of Ishikawa cell after FSH/E2 treatment by RT-Real time PCR, assessed endometrial integrin/β3, LIF, OLFM1 expression and JAr adhesion rate after AQP8 siRNA interfering.

RESULTS: We confirmed FSHR expression in human endometrial tissue and Ishikawa cells, mainly located on cellular membrane and cytoplasm. Western blotting showed significantly up-regulated FSHR and down-regulated AQP8, Integrin/β3, and LIF expression in OS group. PCMB pre-treatment on endometrium cells lead to decreased blastocyst adhesion rate. E2 display a concentration-dependent up-regulation on expression of AQP8 mRNA of Ishikawa cell, while FSH(0,1,3,10,30 IU/L)display a concentration-dependent and time-dependent down-regulation on AQP8 and LIF mRNA. After AQP8 siRNA interfering, the expression of LIF was down-regulated, and OLFM1 was up-regulated. The JAr adhesion rate significantly decreased after AQP8 siRNA.

CONCLUSION: FSH directly down-regulated human endometrial AQP8, and resulted in impaired endometrial receptivity via disregulation of endometrial receptive factors, including LIF and OLFM1.

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LUTEAL PHASE SUPPORT

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EFFICACY OF A PROGESTERONE VAGINAL RING VERSUS PROGESTERONE GEL FOR LUTEAL PHASE SUPPLEMENTATION BY BODY MASS INDEX (BMI). K. M. Silverberg, K. Z. Reape, B. K. Howard. Texas Fertility Center, Austin, TX; Teva Branded Pharmaceutical Products R&D, Horsham, PA.

OBJECTIVE: To determine the efficacy of a novel, weekly progesterone (PGN) vaginal ring (VR) vs daily 8% progesterone vaginal gel (90 mg/day) for luteal phase supplementation after in vitro fertilization (IVF) by BMI.

DESIGN: Prospective, randomized study evaluating patients undergoing IVF. Patients were stimulated with a standard down-regulation protocol. hCG was administered when two follicles >17 mm. Transvaginal oocyte retrieval 35-37 hours after hCG administration. 1:1 randomization to initiate the VR or gel one day following retrieval. Pregnant subjects continued PGN through 12 weeks gestation.

MATERIALS AND METHODS: Serum pregnancy test 14 days following retrieval. Clinical pregnancy rates determined after stratification by BMI (defined as percentage of subjects with visualization of a gestational sac with fetal heart motion present on ultrasound at 8 & 12 weeks of pregnancy).

RESULTS: 1297 eligible women age 18-42 were randomized following retrieval. Two subjects from the PGN VR cohort not included due to missing weight data. Subjects were similarly distributed among BMI categories for both treatment groups. Clinical pregnancy rates were similar for both treatment groups regardless of BMI category. Mean BMI for users of the PGN gel (n = 646) was 25.3 with a range of 16.0-38.0. Mean BMI (kg/m²) for users of the PGN gel (n = 651) was 25.7 with a range of 15.1-38.2.When stratified by BMI, clinical pregnancy rates at 12 weeks in subjects using the PGN VR compared to the gel were: 45.5% vs. 50.0% (BMI<18.5); 48.1% vs. 46.8% (BMI ≥18.5 to <25); 47.8% vs. 45.2% (BMI ≥25 to <30); 41.5% vs. 42.5% (BMI ≥30 to <34); 33.3% to 37.0% (≥34 to ≥38%).

CONCLUSION: Subjects with highest BMI (≥34 to <38+) had slightly lower pregnancy rates than those in the four lower BMI strata, but rates were similar between the treatment groups. Overall, clinical pregnancy rates were within reported ranges for both treatment groups regardless of BMI.

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