Antagonist cycle, luteal support with vaginal micronized progesterone (P4), and ≤ 1.5 uterine contractions/min assessed by time-lapse ultrasound before ET. One or two embryos (at least one of good quality) were transferred. The primary analysis was performed on the full data set and an additional post-hoc sub-set analysis was performed excluding subjects in the top P4 quartile.

Main results and the role of chance: The pregnancy rates at week 10 in the placebo, 100, 300 and 900 mg groups were 29%, 44%, 35%, 45% (trend test: p = 0.15) and the live birth rates were 29%, 40%, 35%, 43% (p = 0.17). When all of the active treatment groups were pooled the live birth rate was 40% compared to 29% for placebo (p = 0.18). Demographics were generally comparable between treatment groups (e.g. mean age 31; oocytes retrieved 11; good quality embryo 3.5; single ET: 60%; double ET: 40%). However, more oocytes and higher pre-treatment serum P4 were recorded in the 300 mg group, and P4 level negatively predicted pregnancy (p < 0.05, as covariate in logistic regression model). In a post-hoc analysis excluding subjects in the top P4 quartile, live birth rates were 31%, 38%, 49% and 51% (trend test: p = 0.025). There was a slight reduction in uterine contractions after treatment compared to placebo, which was highest in the 900 mg group (median change: -13%, p = 0.051). However, overall there was no correlation between pregnancy outcome and uterine contraction rate. Single dose administration of nolasiban at doses up to 900 mg appeared to be well tolerated in this study and did not result in increased occurrence of adverse events or neonatal outcomes.

Limitations, reasons for caution: This study investigated D3 fresh transfers in relatively young women without repeat implantation failure. It was a relatively small study with about 60 patients per group and there was some imbalance in baseline characteristics including serum P4 which appeared to have a confounding effect on pregnancy outcomes.

Wider implications of the findings: The results indicate a potential 10–20% absolute increase in pregnancy and live birth rates compared to placebo after administration of a single oral dose of nolasiban before ET. If confirmed in larger prospective trials this finding has important potential for improving live birth rates following IVF/ICSI.

Trial registration number: ClinicalTrials.gov: NCT02310802.

O-025 High-quality human preimplantation embryos actively influence endometrial stromal cell migration

R.P. Berkhou1, C.B. Lambalk2, J. Huirne3, V. Mijatovic1, S. Repping1, G. Hamer1, S. Mastenbroek1

1Academic Medical Center, Center for Reproductive Medicine, Amsterdam, The Netherlands
2VU University Medical Center, Obstetrics and Gynecology, Amsterdam, The Netherlands

Study question: Do high-quality human preimplantation embryos regulate endometrial stromal stem cell (hESC) migration? What is known already: High-quality embryos stimulate migration of decidualized hESCs and suppress migration of non-decidualized hESCs, irrespective of embryonic developmental stage.

Summary answer: High-quality embryos can stimulate migration of decidualized hESCs and suppress migration of non-decidualized hESCs.

Study design, size, duration: In vitro study using primary hESCs derived from patients undergoing hysterectomy for benign conditions (uterine scar n = 3, dysmenorrhea n = 2; no hormonal treatment) subjected to embryo conditioned medium (ECM). Per assay ECM was pooled from 5 individuals cultured embryos with similar developmental stage and morphological quality. Per developmental stage, high-quality embryos were defined by <20% fragmentation and low-quality embryos were defined by >20% fragmentation. ECM was collected at day 4 after fertilization.

Participants/materials, setting, methods: Primary hESCs were decidualized with cAMP and medroxyprogesterone acetate (MPA) for 5 consecutive