P-387 Serum progesterone levels on the day of the endometrial receptivity analysis (ERA) biopsy do not correlate with the biopsy results

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Study question: Do the serum progesterone levels on the day of the endometrial receptivity analysis (ERA) biopsy correlate with the results of the ERA?
Summary answer: Serum progesterone levels on the day of the endometrial receptivity analysis biopsy do not correlate with the biopsy results.
What is known already: Endometrial receptivity is a time sensitive window characterised by maturation of the endometrium, during which the trophectodermal cells attach to the endometrial cells and invade the endometrial stromal vasculature. Progesterone is an essential element for receptivity and pregnancy. There is no consensus regarding the optimal progesterone levels in the luteal phase, for a successful pregnancy. Endometrial receptivity analysis is a diagnostic tool developed by profiling the transcriptome of over 238 genes that are expressed at different stages of the endometrial cycle. The results are reported as receptive, pre-receptive, early receptive, etc and are used to direct a personalised embryo transfer.
Study design, size, duration: We report a prospective study of 30 patients with a history of recurrent implantation failure (RIF). They underwent ERA testing in a medicated cycle, between early 2018 and late 2020.
Participants/materials, setting, methods: A large proportion of the patients we treat in our clinic (ARGC) have recurrent implantation failure. Thirty patients with RIF underwent ERA testing in a medicated cycle.They all followed the same protocol with down regulation, followed by estrogenic preparation for about 12-14 days, followed by progesterone for about 120 hours. An endometrial biopsy was taken at about 120 hours after progesterone exposure.
Main results and the role of chance: An ERA result was available on 28/30 patients. Eighteen were reported to be pre-receptive, seven receptive, 3 early receptive and 2 could not be analysed. The progesterone levels within 24 hours

of the biopsy for the pre-receptive group ranged from 21.2-472 nmol/l, for the receptive group ranged from 27.8-152 nmol/l and for the early receptive group ranged from 54.9-162 nmol/l. Though the number of cases is small, we found no co-relation between the serum progesterone levels with the ERA results. Eighteen women underwent an embryo transfer based on the ERA results (pET-personalised embryo transfer). Eleven were positive with four live births, one early ongoing pregnancy, three miscarriages, one ectopic pregnancy, two biochemical pregnancies and seven negative results. Seven women had euploid embryo transfers-three had live births, one is viable at 11 weeks, one had a missed miscarriage and two were negative. There are no studies correlating the serum progesterone levels and the ERA results. In practice, we plan embryo transfers for women in frozen cycles by monitoring the serum progesterone levels alongside the day of the cycle. Hence, we wanted to review if the combination of the progesterone levels along with biopsy results would allow us the improve the results further.

Limitations, reasons for caution: This is a small study. Larger datasets are required to draw meaningful conclusions.

Wider implications of the findings: If the above findings are confirmed by larger studies, we may not need to monitor serum progesterone levels during ERA biopsy cycles.

Trial registration number: NA