

# EVALUATING THE ROLE OF ENDOMETRIAL RECEPTIVITY ARRAY (ERA) IN PATIENTS WITH FIRST FROZEN EMBRYO TRANSFERS (FET)

R.B. Hombalegowda, W. Ziegler

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## Background

The endometrial receptivity assay (ERA) has been reported to be more effective than standard histology in determining uterine dating and timing of receptivity 1-3. Gene expression profiling has characterized the endometrial lining by defining the transcriptome during the window of implantation (WOI). ERA testing has been developed to identify the appropriate time for embryo transfer. It has been studied in patients with recurrent implantation failure to define the WOI and to develop a personalized protocol for endometrial preparation for subsequent embryo transfer<sup>1,2</sup>. To date this test has not been evaluated in those patients who are proceeding with first FET cycles.

## Objective

The objective of this study is to document our experience with the ERA testing among patients with first FETs and to determine whether adjusting embryo transfer day according to proposed shift in the window of implantation improved pregnancy rates among ERA tested patients compared to Non-ERA tested group.

## Materials and Methods

It is a retrospective study of all the patients who underwent first frozen embryo transfer in our center from January 2017 to January 2019. The study group includes patients who underwent ERA testing prior to the embryo transfer and the patients who underwent conventional FET cycle without ERA testing were included in the control group. Patients with recurrent implantation failures and prior frozen embryo transfers were excluded from the study (IRB Registration#00003104)

## Results

During the study period, 224 patients (75.6 % -control group) underwent FET cycles without performing the ERA testing and 72 patients (24.3 %-study group) had FET following an ERA test. Out of the 72 patients who had the ERA test before their first FET, 31 endometrial samples (43.1 %) were found to be receptive, 32 (44.4%) pre-receptive, and 9 samples (12.5 %) were post receptive. We found that there is slightly increased live birth rates (50% vs 39.7 %, P=0.13 ), and low miscarriage rates (5.6% vs 10.7 %, P=0.25 ) in the study group compared to control group, after the appropriate adjustment in timing of FET. However, this difference was not statistically significant. The non-pregnant rates were comparable in both the groups. (31.9% vs 34.9%) Only two patients had ectopic pregnancy, and both were in the control group.

## Conclusion

Our experience demonstrates the slight benefit of ERA testing in improving live birth rates and miscarriage rates in patients with first frozen embryo transfers. However, more studies are required to confirm these initial findings.

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#### References

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