

# IVF OUTCOME IN PATIENTS WITH RECURRENT IMPLANTATION FAILURE DETECTED TO HAVE DISPLACED RECEPTIVITY ON ENDOMETRIAL RECEPTIVITY ARRAY- A CASE SERIES

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Recurrent implantation failure is defined as the failure to achieve implantation after three or more cycles of IVF (In Vitro Fertilization), affecting approximately 10% of couples undergoing IVF. One possible contributing factor is a displaced or individualized window of implantation (WOI), leading to embryo–endometrial asynchrony. ERA is a molecular diagnostic tool that evaluates gene expression profiles related to endometrial receptivity and has been proposed to optimize the timing of embryo transfer and improve outcomes in such patients.

The ERA was first reported in 2011 by Díaz-Gimeno et al. as a "genomic tool composed of a customized microarray" to "define the transcriptomic signature of human endometrial receptivity"<sup>1</sup>. A personalized embryo transfer (PET) was proposed as a logical consequence of the ERA results, adjusting the individual length of progesterone exposure to the identified window of implantation (WOI) for each patient<sup>2</sup>.

A 41-year-old patient came to Indira IVF clinic for infertility consultation and was diagnosed with diminished ovarian reserve. She had four failed ET cycle that involved two fresh grade 1 day-5 embryo derived from donor oocytes in 2 cycle and donor embryo in another 2 cycles. Diagnostic hysteroscopy was done initially, cavity was normal. APLA test was normal. Thus, Endometrium Receptivity Analysis (ERA) was resorted before her next cycle. ERA protocol was prepared using Hormone Replacement Therapy (HRT) cycle with estrabet 2mg thrice daily. The gene expression profile showed pre-receptive endometrium and a repeat endometrial biopsy was suggested at  $172\pm 3$  hours of progesterone administration. Another ERA test was sent at the specified time after 3 months and blastocyst transfer was recommended with  $197\pm 3$  hours of progesterone administration. Donor blastocyst-stage embryo transfer was performed as per the ERA report. Clinical pregnancy was confirmed. She is currently pregnant with SLIUF of 6 weeks of gestation. Similarly, another 5 patients in the past 2 years with multiple IVF failures conceived after ERA, though their outcomes varied. ERA-guided personalized embryo transfer can be considered to improve implantation and pregnancy outcomes in patients with recurrent IVF failure, particularly those with a displaced WOI.