OBSTETRICS & GYNECOLOGY

Endometrial Receptivity Testing and Subsequent Adjustment to Window of Implantation Timing Improve Pregnancy Success Rates of Women Undergoing Assisted Reproductive Technology

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INTRODUCTION

For decades, REI research focused on solely on the creation of a viable embryo to increase pregnancy rates. Recently, research has identified the impact of endometrial adhesion molecule expression during the window of implantation (WOI) as playing a major role in embryo implantation.

METHODS

This is a retrospective case-control study of women undergoing assisted reproductive technology and the effects of the Igenomix © Endometrial Receptivity Assay (ERA) on pregnancy success rates following frozen embryo transfer.

RESULTS

ERA results showed 29 of 60 patients were normal, 20 of 60 patients were Early Receptive (WOI existing 12 hours later than expected), and 11 of 60 patients were Pre-Receptive (WOI existing 24 hours later than expected). Ninety-one percent of patients with a corrected abnormal ERA had successful pregnancies while only 72% achieved successful pregnancy without using ERA to assess for their WOI ($p = < 0.01$, OR 3.82).

Table 1: Patient Demographics

	Women with ERA testing	Women without ERA testing
Sample Size	60	47
Minimum Age (yrs)	27	25
Maximum Age (yrs)	43	36
Average Age (yrs)	34.6	34.4

Table 2: Comparison of successful pregnancies in patients with normal vs abnormal ERA test results after failed FET

	Successful Pregnancy	Unsuccessful Pregnancy	Pregnancy %
Normal ERA	16	13	55.2
Abnormal ERA	12	19	38.7
p = 0.24			
OR = 1.98			

Table 3: Comparison of Successful pregnancies in patients with corrected abnormal ERA vs. control group after failed FET

	Successful Pregnancy	Unsuccessful Pregnancy	Pregnancy %
Corrected ERA	20	2	90.9
Control Group	34	13	72.3
p = < 0.01			
OR = 3.82			

Table 4: List of major biomarkers associated with WOI and endometrial receptivity that are tested for by ERA

Avß3 Integrin
Leukemia Inhibitor Factor (LIF)
HOXA10
Glutathione Peroxidase 3
CD56+ NK Cells
NOTCH1

CONCLUSION

Endometrial Receptivity Assay testing has a significant impact on successful pregnancy rates among patients undergoing ART. Women should be encouraged to undergo ERA testing to ensure accurate timing of their WOI for embryo transfer. While numerous medication changes can be made by the physician to improve implantation success rates, if the WOI timing is not accounted for, those changes are for naught because the endometrium is not prepared to receive the embryo and subsequent embryo implantation into the endometrium will not occur. The use of ERA could save the patient tens-of-thousands of dollars and shave years off their time to achieving successful pregnancies.

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