

AGING INCREASES THE RISK OF DELAYED IMPLANTATION WINDOW: AN ANALYSIS USING ENDOMETRIAL RECEPTIVITY ARRAY

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Abstract Body

Study Question: Does aging affect timing of the implantation window?

Study design, Size, and Duration: A cross-sectional study. A total of 149 successful ERA cycles and subsequent FET cycles from March 2020 to May 2022 at Taipei Fertility Center (Taipei, Taiwan) were included.

Materials, Setting, Methods: All enrolled women were prepared for ERA or subsequent frozen-thawed embryo transfer (FET) in a natural or artificial cycle. Patients with untreated uterine disorders or recipients of oocyte donation programs were excluded. Data of different ERA result groups and their following ERA-FET outcomes were calculated.

Main Results: Receptive ERA rate decreased as patients' age increased: 54.2% (<40 years old), 48.1% (40-45), and 30% (45 or above) accompanied by a trend of increasing pre-receptive ERA rate: 12.5%, 34.6%, 50.0%, respectively ($p < 0.05$). The positive correlation between postponed WOI and aging was observed in both natural and artificial cycles. The mean age of women in the pre-receptive group (42.5 ± 3.2 years old) was higher than the receptive and post-receptive groups (40.4 ± 3.3 and 39.9 ± 4.3 years old, respectively) ($p < 0.05$), while no differences in other characteristics between ERA result groups were found. Despite similar percentages of preimplantation genetic testing and good embryos transferred, clinical pregnancy was significantly higher in the non-receptive ERA patients after WOI adjustment as compared with the receptive ERA group (80% versus 53.57%, $p < 0.05$) in 58 subsequent FET cycles. Albeit insignificant, a higher implantation rate was also documented in the non-receptive group (50.00% versus 33.33%, $p = 0.086$).

Conclusion: The shift from ERA receptive dominance in young women to a high pre-receptive rate in older women suggested a tendency of delayed WOI as age increased. Personalized FET made under ERA recommendations helped increase the clinical pregnancy rate. Further RCTs are required to validate the ERA effectiveness on ART outcomes.