

Enhancing pregnancy outcomes in women with adenomyosis: the role of gonadotropin releasing hormone agonist (GnRHa) prior to frozen-thawed embryo transfer

T Luong^{1,2,3}, N Ho^{3,4}, Y Hu³, J Yen-Ping Ho³, S Lin³, R Wang³, Y Lee³, S Tan³, N Le^{5,6,7}, C Tzeng³

¹International Ph.D. Program in Medicine, College of Medicine, Taipei Medical University, Taipei, Taiwan

²AI BioMed Research Group, Taipei Medical University, Taipei, Taiwan

³Taipei Fertility Center, Taipei, Taiwan

⁴IVFMD, My Duc Hospital, Ho Chi Minh, Viet Nam

⁵Professional Master Program in Artificial Intelligence in Medicine, College of Medicine, Taipei Medical University, Taipei, Taiwan

⁶Research Center for Artificial Intelligence in Medicine, Taipei Medical University, Taipei, Taiwan

⁷Translational Imaging Research Center, Taipei Medical University Hospital, Taipei, Taiwan

Country: Taiwan

Introduction/Background

Adenomyosis is linked to reduced implantation and pregnancy rates, possibly due to impaired endometrial receptivity. Pretreatment with depot GnRHa before frozen-thawed embryo transfer (FET) has shown promise in improving reproductive outcomes by enhancing endometrial readiness. This study investigates whether GnRHa pretreatment enhances pregnancy outcomes in women with adenomyosis undergoing FET.

Materials and Methods

This retrospective cohort study was conducted from 3/2020 to 10/2022 with 162 women diagnosed with adenomyosis. Adenomyosis diagnosis was established through surgical history or ultrasound. Participants were categorized into two groups: one receiving a single 3.75 mg dose of depot leuporelin during the early follicular phase before FET initiation (n=124), and the other without this pretreatment (n=38). Exclusion criteria included premenopausal and menopausal status, intrauterine adhesion, or other persistent uterine abnormalities impacting the implantation process.

Results

Pituitary suppression resulted in lower luteinizing hormone levels (1.20 ± 1.90 vs 3.77 ± 3.88) ($p < 0.001$). There were no differences in the number of embryo transfers (1.77 ± 0.93 vs 1.97 ± 0.97), or the proportion of good embryos transferred (78.2% vs 81.6%) ($p > 0.05$). Women with GnRHa pretreatment experienced higher implantation rates (36.1% vs 22.7%) ($p < 0.05$). While the observed improvement in clinical pregnancy rates was "marginally significant" (54.0% vs 36.8%) ($p = 0.06$), this might be worth investigating further or interpreting cautiously in the context of adenomyosis. Although statistically insignificant, GnRHa pretreatment showed associations with a higher live birth rate (42.6% vs 21.1%) ($p = 0.09$) and a lower early miscarriage rate (19.2% vs 21.4%) ($p = 0.86$). No differences were noted in gestational age at delivery (37.3 ± 3.6 vs 36.3 ± 2.75 weeks) and birth weight (2519 ± 768 vs 2270 ± 433 grams) ($p > 0.05$).

Conclusion

Pituitary suppression using depot GnRHa prior to FET significantly increases the pregnancy rate in women with adenomyosis, while demonstrating comparable neonatal outcomes to conventional FET cycles. Further randomized controlled trials are essential to validate the effectiveness of GnRHa and determine the optimal FET protocol for women with adenomyosis diseases.

Key words

Adenomyosis, GnRH pretreatment, FET