THE ASSOCIATION BETWEEN AUTOIMMUNE PREDISPOSITION AND ENDOMETRIAL THICKNESS IN INTRAUTERINE INSEMINATION CYCLES WITH/WITHOUT OVULATION INDUCTION (IUI/±OI): A RETROSPECTIVE COHORT OF 12,087 CYCLES

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Introduction

•Autoimmune predisposition and its associated inflammation may influence endometrial development and implantation thereby predisposing pregnancies to placental-related complications such as preeclampsia, and fetal growth restriction.

•Preovulatory endometrial thickness (EMT) is often used as a sonographic proxy for endometrial growth and perfusion. Its development is often influenced by various treatment- and patient-related factors (the latter potentially including existing comorbidities).

Objective

•To investigate the association, if any, between autoimmune predisposition and preovulatory EMT in IUI/±OI cycles.

Methods

•Design: Retrospective cohort.

•Setting: Academic fertility center.

•Patients: 4,482 patients undergoing 12,087 IUI/±OI cycles.

•Intervention: Cycles were stratified into two groups, based on the presence or absence of an autoimmune disease [autoimmune (AI), vs. non-autoimmune (non-AI)]. EMT (mm) was compared between groups.

•Outcomes

- *Primary*: EMT (mm).
- *Secondary*: Clinical pregnancy rate (CPR).

•Statistics: Beta coefficients (β), odds ratios (OR), and their respective 95% confidence intervals (95%CI) were calculated using generalized estimating equations (GEE) regression analysis.

Table 1. Baseline characteristics between autoimmune groups.

	AI (N=473)	Non-AI (N=11614)	p-value
Age (years)	35.6±3.6	35.1±4.3	0.027
AMH (ng/ml)	3.5±4.3	4.0±4.4	<0.001
Day 3 FSH (U/L)	7.8±3.5	7.6±3.7	0.202
BMI (kg/m2)	25.4±5.4	25.0±5.0	0.234

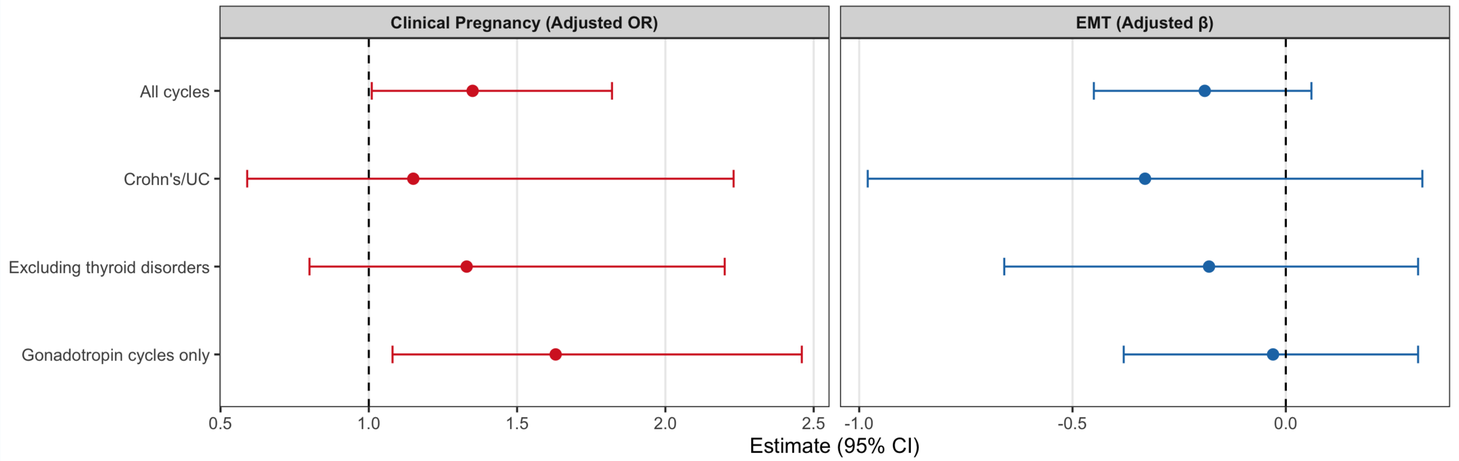
Numeric variables presented as Mean (SD), categorical variables presented as N (%).

Table 2. Unadjusted results for outcomes of interest between autoimmune groups.

	AI (N=473)	Non-AI (N=11614)	Total (N=12087)	p-value
EMT	8.3 (2.4)	8.5 (2.4)	8.5 (2.4)	0.430
CPR	64 (13.6%)	1253 (10.9%)	1317 (11.0%)	0.063

Numeric variables presented as Mean (SD), categorical variables presented as N (%).

Figure. Adjusted results for outcomes between groups (Reference: Non-AI)



Methods (cont'd)

•Statistics: GEE models were used to account for more than one cycle per patient, and adjust for maternal age, body mass index, day-3 FSH, infertility diagnosis, number of days between last EMT measurement and HCG trigger, and OI, if any used (gonadotropins, clomiphene, letrozole), and natural cycles.

Methods (cont'd)

•The following three sub-analyses were performed:

i) cohort with cycles involving only Crohn's or Ulcerative colitis patients (Crohn's/UC)

ii) cohort after exclusion of autoimmune thyroid conditions

iii) cohort including gonadotropin-stimulated cycles only.

Results

•Baseline characteristics are presented in *Table 1*. Idiopathic infertility was the most common diagnosis in both AI (26.7%) and non-AI groups (31.7%).

•Prior to adjusting for confounders, EMT on the day of HCG trigger and CPR did not differ significantly between AI vs. non-AI, respectively (*Table 2*).

•After adjusting for confounders, no differences were noted in EMT between groups, either among all cycles or in either of the subanalyses (*Figure*).

•AdjOR(95%CI) suggested higher CPR with AI compared to non-AI among all cycles [1.35 (1.01, 1.82)] and among gonadotropin only cycles [1.63 (1.08, 2.46); non-AI as *ref*] (*Figure*).

•When analysis was limited to cycles from patients with either Crohn's/UC or excluding thyroid disorders, no differences were noted in adjOR(95%CI) CPR between groups (*Figure*).

Conclusions

•In this large retrospective cohort, autoimmune predisposition was not associated with impaired endometrial development or lower clinical pregnancy rates.

•Preserved endometrial thickness in patients with autoimmune conditions suggests that endometrial growth/perfusion is intact, supporting IUI/±OI as an appropriate option for patients with autoimmune conditions.

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