

Double Insemination Does Not Improve Pregnancy in Oral Ovulation Induction Intrauterine Insemination Cycles

Carrie A Malcom MD PhD¹, Kerry Flannagan PhD², Phillip A Romanski MD MSc³, and Anthony N. Imudia MD^{2,4}

¹Division of Reproductive Endocrinology, Dept of Obstetrics & Gynecology, University of South Florida, Morsani College of Medicine, Tampa, FL, USA. ²Shady Grove Fertility Reproductive Science Center, Rockville, MD, USA. ³RMA of New York, New York, NY, USA. ⁴Shady Grove Fertility of Tampa Bay, Tampa, FL, USA.

BACKGROUND

- Some infertility clinics perform two inseminations within a single intrauterine insemination (IUI) cycle, instead of a single insemination, to increase the chance of pregnancy
- Rationale: double insemination exposes an oocyte to increased amounts of sperm, particularly in cases of low total motile sperm count, and accounts for variability in ovulation time after taking an ovulatory trigger
- Prior IUI studies investigating pregnancy outcomes in double vs. single insemination have included patients on both oral medication and gonadotropins for ovulation induction, with mixed results^{1,2}

OBJECTIVE

To determine whether double insemination during IUI cycles using letrozole or clomiphene for ovulation induction improves pregnancy outcomes compared to single insemination

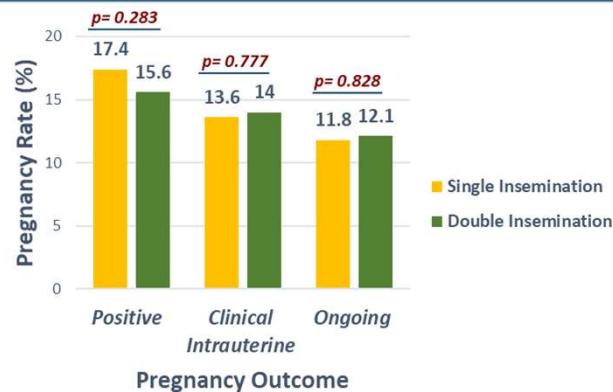
METHODS

- Retrospective multicenter cohort study
- Total of 6,082 IUI cycles in patients treated with letrozole or clomiphene from January 1, 2017 to December 31, 2023
- Inclusion Criteria: females ≥18yo undergoing IUI, ≥1 patent tube
- Exclusion Criteria: cycles using gonadotropins for ovulation induction
 - Only the first IUI cycle for a single patient was included if the patient underwent multiple cycles
- Patients were stratified based on whether they underwent a single (n=5,562) or double (n=520) insemination within a single cycle
- Main outcome measures: positive pregnancy, clinical intrauterine pregnancy, and ongoing pregnancy
- Statistical Analysis: Chi-squared test performed for categorical variables; independent T-test performed for continuous variables

RESULTS

Demographics and Cycle Characteristics	Single Insemination (N=5562)	Double Insemination (N=520)
Age (years), mean (SD)	33.6 (4.0)	34.0 (3.7)
Body Mass Index (BMI) (kg/m ²), mean (SD)	27.4 (6.8)	25.9 (6.6)
Race/Ethnicity, N (%)		
Asian	636 (11.4)	54 (10.4)
Black/African American	361 (6.5)	14 (2.7)
Hispanic/Latino	418 (7.5)	37 (7.1)
Other race and multiracial	85 (1.5)	0
White	2984 (53.6)	328 (63.1)
Unknown	1078 (19.4)	87 (16.7)
Oral Ovulation Induction Agent, N (%)		
Clomid	2743 (49.3)	169 (32.5)
Letrozole	2770 (49.8)	350 (67.3)
Both	49 (0.9)	1 (0.2)
Progesterone level pre-trigger (ng/ml), mean (SD)	0.54 (0.36)	0.44 (0.28)
Luteinizing Hormone level pre-trigger (mIU/mL), mean (SD)	12.9 (14.3)	9.7 (11.1)
Total Motile Sperm Count (x10 ⁶), 1 st insemination, mean (SD)	28.4 (28.7)	31.6 (40.0) <i>P=0.073</i>

Pregnancy Outcomes Relative to Number of Inseminations



RESULTS

Pregnancy Outcomes Relative to Number of Inseminations Stratified by Ovulation Induction Medication

	Single Insemination	Double Insemination	P-value
Pregnancy Rate	N (%)	N (%)	
Letrozole			
Ongoing Pregnancy	367 (13.2)	36 (10.3)	0.119
Clomiphene			
Ongoing Pregnancy	285 (10.4)	27 (16.0)	0.023

CONCLUSION

- Double insemination does not significantly improve pregnancy outcomes compared to single insemination in IUI cycles using letrozole/clomiphene for ovulation induction
 - Increased ongoing pregnancy rate noted in clomiphene double insemination cycles, however small sample size and analysis unadjusted
- The decision to proceed with double insemination should not be a routine practice given lack of proven benefit

REFERENCES

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