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Title

FAMILY PLANNING FOR SAME SEX FEMALE COUPLES: DEFINING THE ROLE OF OVULATION INDUCTION IN DONOR INTRAUTERINE INSEMINATION CYCLES

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Objective

Same sex (SS) female couples seeking reproductive assistance are not necessarily “infertile.” However, many SS women routinely undergo treatments such as ovulation induction (OI), which can result in an increased risk of multiple gestations. This study aimed to determine whether natural ovulation or OI with oral agents results in improved outcomes for fertile SS couples undergoing donor intrauterine insemination (DIUI).

Design

Retrospective cohort study

Materials and Methods

Patients undergoing a natural cycle or OI with Clomid (CC) or Letrozole and subsequent DIUI from 2002-2017 were included. Patient age, BMI, ovarian reserve testing, number of mature follicles and endometrial thickness at time of ovulation trigger were obtained. All DIUIs were performed with donor, cryopreserved sperm. Implantation was confirmed by the presence of an



intrauterine gestational sac on ultrasound. Data was analyzed using a chi squared, fisher’s exact test, and student’s t-test.

### Results

A total of 839 SS women were included in the study, of which 434 underwent natural cycle/DIUI and 405 underwent OI/DIUI. Among those undergoing OI, 266 (65.7%) patients used CC and 139 (34.4%) used Letrozole. Age, BMI, and markers of ovarian reserve were similar among SS women undergoing natural vs. OI cycles. Women in the OI group had a higher number of mature follicles ( $1.63 \pm 0.9$  vs.  $0.94 \pm 0.3$ ,  $p < 0.001$ ) but a thinner endometrial lining ( $8.42 \pm 1.9$  vs.  $9.16 \pm 1.9$  mm,  $p < 0.001$ ) than those in the natural group at the time of trigger. Implantation, ongoing pregnancy and pregnancy loss rates were similar between groups [Table 1]. However, multiple gestation rate was significantly higher in OI cycles compared to natural cycles (14% vs. 2.3%,  $p = 0.04$ ).

### Conclusion

In this population of fertile SS women, pregnancy rates were comparable between patients undergoing OI and natural cycles, however those taking oral medication for OI demonstrated a higher rate of multiple gestations. Given the financial burdens, time commitment, and overall low success rates associated with DIUI cycles, the benefit of oral agents for ovulation induction is minimal and may even increase risks for SS couples. Therefore, a reasonable first line approach to treating healthy SS couple patients is with natural cycle/DIUI.

### Support

None.

Table 1. Patient Demographics, Cycle Characteristics and Pregnancy Outcomes in Same Sex Couples undergoing Natural and Ovulation Induction Cycles

	Natural (n=434)	Ovulation Induction (n=405)	P Value
Age (y)	$36.7 \pm 3.8$	$36.2 \pm 3.9$	NS
BMI ( $\text{kg}/\text{m}^2$ )	$24.4 \pm 5.7$	$24.9 \pm 5.1$	NS
Day 3 FSH (IU/mL)	$8.4 \pm 4.9$	$7.41 \pm 3.2$	NS
Anti-mullerian Hormone (pmol/L)	$4.08 \pm 2.7$	$3.47 \pm 3.7$	NS
Basal Antral Follicle Count	$11.8 \pm 10.2$	$13.5 \pm 7.1$	NS
Gravidity	$0.38 \pm 0.8$	$0.49 \pm 0.8$	NS
Parity	$0.13 \pm 0.5$	$0.16 \pm 0.5$	NS



Endometrial Thickness at time of Trigger (mm)	9.16 ± 1.9	8.42 ± 1.9	<0.001
Total Number Mature Follicles at time of Trigger	0.94 ± 0.3	1.63 ± 0.9	<0.001
Implantation Rate	10.1% (44/434)	12.3% (50/405)	NS
Ongoing Pregnancy Rate	7.6% (33/434)	9.4% (38/405)	NS
Biochemical Rate	5.2% (24/450)	3.7% (21/250)	NS
Clinical Pregnancy Loss Rate	25.0% (11/44)	24.0% (12/50)	NS
Multiple Gestation Rate	2.3% (1/44)	14% (7/50)	0.04