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INTRAUTERINE INSEMINATION USING DONOR SPERM: EXPLORING CLINICAL PREGNANCY RATES IN SAME SEX FEMALE COUPLES, SINGLE FEMALES, AND HETEROSEXUAL COUPLES

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OBJECTIVE:

Same-sex female couples (SSFC) and single females (SF) utilize intrauterine insemination with donor sperm (IUI-DS) as a first line treatment option to building a family. An accurate estimation of IUI-DS success rates from a large, national sample has yet to be established in the United States for SSFC and SF populations. Outcomes from studies conducted in heterosexual couples (HSC) may serve as a baseline for comparison for SSFC and SF, though health factors differ among groups. This study aims to establish clinical pregnancy rates in IUI-DS cycles in SSFC and SF, and secondarily compare between groups.

MATERIALS AND METHODS:

This retrospective cohort study, conducted at a large U.S. practice network, included all IUI-DS cycles between 2010 and 2022. The primary outcome was clinical pregnancy (CP) rate. Demographic, baseline health, and cycle data was abstracted from electronic health records. Diversity in patient relationships, denoted by SSFC, SF, and HSC, was categorized by keyword search and manual chart review. Demographics and outcomes were compared via chi square or t tests. A generalized estimating equation (GEE) model was used to calculate adjusted odds ratios (aOR) for CP, with covariates of relationship type, age category, body mass index (BMI) and stimulation protocol. $P < 0.05$ was considered significant.

RESULTS:

This study included 3184 SSFC, 1454 SF, and 3420 HSC patients who completed 9328, 4125, and 9328 IUI-DS cycles respectively. SSFC were younger at intake than SF and HSC (mean age 33 vs 38 vs 35 years respectively, $p < 0.001$). SSFC had higher ovarian reserve than SF and HSC (median anti-Müllerian hormone 3.1 vs 1.9 vs 2.3ng/mL, $p < 0.001$; median antral follicle count 16 vs 12 vs 12, $p < 0.001$). Obesity rates differed between groups: 36%, 39%, and 30% $p < 0.001$.

The overall CP rates for SSFC (18%) were higher compared to SF (14%) and HSC (15%, all $p < 0.001$). However, this difference did not persist when groups were stratified by age (all $p > 0.05$, Table 1).

Considering all IUI-DS cycles in a multivariable model, increasing age was associated with decreased odds of CP ($p < 0.001$). Compared to unstimulated cycles, gonadotropin stimulation was associated with increased odds of CP ($p < 0.001$). Patient relationship type and BMI did not affect the odds of CP.

Table 1: Clinical Pregnancy Rates

Age	Heterosexual	Single Females	Same Sex Females	p value
<35	20%	21%	19%	0.7
35-37	16%	17%	18%	0.3
38-40	13%	13%	14%	0.9
41-42	8%	9%	6%	0.4
>42	4%	7%	6%	0.8

CONCLUSIONS:

Diversity in patient relationships, whether SSFC, SF, or HSC, did not correspond to likelihood of CP after correcting for age, BMI, and stimulation protocol in IUI-DS cycles. However, SSFC had higher crude CP rate than SF and HSC.

IMPACT STATEMENT:

We estimate CP rates in IUI-DS cycles, stratifying by relationship type to address the unique needs of same sex female couples and single females.

REFERENCES:

1. Fredriksen-Goldsen KI, Romanelli M, Jung HH, Kim, HJ. Health, Economic, and Social Disparities among Lesbian, Gay, Bisexual, and Sexually Diverse Adults: Results from a Population-Based Study. Behavioral Medicine, 2024: 50(2), 141–152. <https://doi.org/10.1080/08964289.2022.2153787>