Does Indication Matter? Gonadotropin Dosing and Outcomes For Medically-Indicated vs. Planned Fertility Preservation

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BACKGROUND

- Medically-indicated fertility preservation (FP) mitigates infertility risk in young cancer patients undergoing gonadotoxic therapy
- Time-sensitive cancer treatment limits FP attempts and can influence gonadotropin dosing
- Limited U.S. national data comparing gonadotropin dosing and ovarian stimulation outcomes between medically-indicated and planned FP

OBJECTIVE & HYPOTHESES

Objective: Compare total gonadotropin dosage and ovarian stimulation outcomes between medically-indicated vs. planned FP

Hypotheses:

- Medically-indicated FP is associated with higher total gonadotropin dosage than planned FP
- Greater total gonadotropin dosage results in greater number of resulting oocytes and embryos

MATERIALS AND METHODS

- **Design**: Retrospective cohort study
- **Dataset**: Society for Assisted Reproductive Technology Clinical Outcome Reporting System (SART CORS) for FP cycles between 2016-2021
- **Eligibility**: Medically-indicated if undergoing gonadotoxic therapy or cancer-related reason for FP; remaining cycles designated as planned FP group
- **Exposure**: Medically-indicated versus planned FP
- **Outcomes**: Total follicle stimulating hormone (FSH) dosing, number of oocytes retrieved, number of embryos derived
- **Analysis**: First cycle per patient analyzed; association between exposure and outcomes using logistic and linear regression models, adjusted for confounding variables (age, race, ethnicity, BMI, and gravidity)

RESULTS

- Study cohort: Cohort of 81,352 participants, 7.5% underwent medically-indicated FP
- Demographic differences between medically-indicated and planned FP groups in age, race, ethnicity, BMI, and gravidity (Table 1)

Table 1: Demographics and Summary Statistics by FP Indication

	All (n=81,352) N (%)	Planned FP (n=75,224) N (%)	Medically-Indicated FP (n=6128) N (%)	P-value
Age				
<35	33179 (41)	28834 (38)	4345 (71)	**< 0.001**
35-37	25309 (31)	24341 (32)	968 (16)	
38-40	16125 (20)	15585 (21)	540 (9)	
41-42	4472 (5)	4293 (6)	179 (3)	
>42	2267 (3)	2171 (3)	96 (1)	
Race				
White	31917 (39)	29018 (39)	2899 (47)	**< 0.001**
Black	3687 (5)	3324 (4)	363 (6)	
Asian	9724 (12)	9273 (12)	451 (7)	
Other	36024 (44)	33609 (45)	2415 (40)	
Ethnicity				
Non-Hispanic	78427 (96)	72650 (97)	5777 (94)	**< 0.001**
Hispanic	2925 (4)	2574 (3)	351 (6)	
BMI				
<25	46553 (57)	43563 (58)	2990 (49)	**< 0.001**
≥25, <30	15745 (19)	14429 (19)	1316 (21)	
≥30, <35	5922 (7)	5317 (7)	605 (10)	
≥35	3034 (4)	2719 (4)	315 (5)	
Unknown	10098 (13)	9196 (12)	902 (15)	
Gravidity				
0	63981 (79)	59261 (79)	4720 (77)	**0.001**
≥1	17241 (21)	15840 (21)	1401 (23)	

- No adjusted difference in FSH dose between groups (Table 2)
- Medically-indicated FP was not associated with lower oocyte or embryo yield (Figure 1, Table 2)
- Higher oocyte and embryo yield with medically-indicated FP (Table 2)

RESULTS

Figure 1: Oocyte and Embryo Outcomes for Medically-Indicated vs. Planned FP

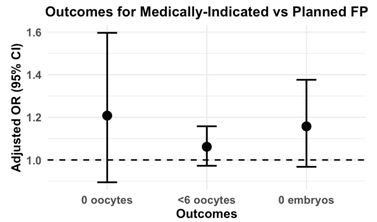

Table 2: FSH Dosing, Oocyte, and Embryo Outcomes Between Planned and Medically-Indicated FP

Outcome	Planned FP (n=75,224)	Medically-Indicated FP (n=6128)	P-value	Unadjusted β (SE) or OR (95% CI)	Adjusted β (SE) or OR (95% CI)
Mean FSH Dosage (IU)	3376.2 ± 1410.2	3251.7 ± 1367.5	**< 0.001**	**-124.5 (18.7)**	-2.2 (18.2)
Oocyte Number	12.3 ± 8.3	14.3 ± 9.9	**< 0.001**	**2.0 (0.1)**	**0.8 (0.2)**
No oocytes (n)	692 (0.92%)	53 (0.86%)	**< 0.001**	1.0 (0.8, 1.3)	1.2 (0.9, 1.6)
< 6 oocytes (n)	11599 (15%)	739 (12%)	**< 0.001**	**0.8 (0.8, 0.9)**	1.1 (0.97, 1.2)
Embryo Number	4.1 ± 3.9	5.4 ± 4.7	**< 0.001**	**1.3 (0.1)**	**0.7 (0.1)**
No embryos (n)	1709 (2.3%)	157 (2.6%)	**< 0.001**	0.9 (0.8, 1.1)	1.2 (0.96, 1.4)

CONCLUSIONS

- No difference in gonadotropin dosing for medically-indicated vs. planned FP
- Greater oocyte and embryo yield with medically-indicated FP
- Implications for patient counseling, treatment planning, and gonadotropin insurance coverage for young cancer patients

REFERENCES

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