IN VITRO FERTILIZATION OUTCOMES IN PATIENTS WITH BMI 40-44.9 COMPARED TO BMI ≥45

Cecilia Rosenbaum, MD[1] • Amanda Ferraro, MD[1] • Blaire Scott, MD[1] • Jennifer Peck, PhD[2] • Karl Hansen, MD PhD[1] • LaTasha Craig, MD[1]

[1]Section of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology, The University of Oklahoma College of Medicine, Oklahoma City, OK

[2]Department of Biostatistics and Epidemiology, The University of Oklahoma Hudson College of Public Health, Oklahoma City, OK

BACKGROUND

- BMI ≥30kg/m^2 is associated with multiple medical comorbidities that can influence pregnancy outcomes [1, 2].
- Some studies have suggested lower pregnancy rates in obese patients, while others suggest similar clinical pregnancy rates amongst those with morbid obesity [3] [4].
- Previous research suggest that these patients can safely undergo egg retrieval procedures [4]
- Patients with morbid obesity may require an increased number of embryo transfers to achieve a live birth [5]
- ART outcomes in this patient population is understudied as many clinics have lower BMI cutoffs.
- Our state is noted to have one of the highest obesity rates in female patients [6]
- The BMI cut off at our University-Based IVF clinic is <50, allowing us to explore outcomes in this patient population.

OBJECTIVE

The purpose of this study was to explore whether patients with BMI 40-44.9 had similar clinical pregnancy and live birth rates when compared to patients with BMI ≥45 in our IVF clinic.

METHODS

- Retrospective Chart Review
- Pilot Study
- Fresh and frozen autologous IVF cycles of patients with BMI ≥40
- Single academic SART database between 2017-2023
- Both egg retrieval and embryo transfer in study timeframe
- We used generalized estimating equations (GEE) with cluster-weighted modified Poisson regression, robust standard errors to estimate risk ratios (RRs), adjusted risk ratios (aRR), and 95% confidence intervals (CIs)
- We controlled for age at retrieval, fresh or frozen cycle, endometrial thickness and number of embryos transferred in our statistical model

		Clinical Pregnancy			Live Birth		
BMI Group	**Cycles**	**Clinical Pregnancy**	**Unadjusted Risk Ratio (95% CI)**	**Adjusted[a] Risk Ratio (95% CI)**	**Live Birth**	**Unadjusted Risk Ratio (95% CI)**	**Adjusted[a] Risk Ratio (95% CI)**
BMI 40.0 – 44.9	75	39 (52.0%)	1.00 (Ref)	1.00 (Ref)	25 (33.3%)	1.00 (Ref)	1.00 (Ref)
BMI ≥ 45.0	29	14 (48/3%)	0.96 (0.63, 1.46)	0.94 (0.66, 1.35)	9 (31.0%)	1.01 (0.53, 1.93)	0.96 (0.56, 1.64)

[a] Risk ratio adjusted for age at retrieval, fresh or frozen cycle, endometrial thickness and number of embryos

CONCLUSION

- Patients with BMI 40-44.9 do not have a significant difference in clinical pregnancy or live birth rate when compared to patients with BMI ≥45 in autologous IVF cycles.
- Patients with BMI ≥45 have similar IVF outcomes to BMI 40-44.9, should have access to fertility treatment and can be counselled similarly.
- Future research should focus on pregnancy and fetal outcomes of patients with BMI ≥45 to further guide counseling and clinical care.

RESULTS

- 104 cycles met our inclusion criteria and were analyzed
- 75 patients that had class III obesity with a mean BMI of 41.97± 1.56 standard deviation (SD) and 29 patients that had morbid obesity with a mean BMI of 46.98 ± 1.89 SD
- The mean age at retrieval for the class III obesity and morbid obesity groups were 33.13± 3.97 SD and 33.83 ±4.61SD, respectively (p=0.35).
- Thirty-five patients were excluded from our analysis for not having undergone a transfer in the study time frame.
- There was no significant difference in clinical pregnancy rate between class III and morbid obesity (52.0% vs. 48.3%, aRR 0.94, 95% CI 0.66-1.35) and no significant difference in live birth rate (33.3% vs. 31%, aRR 0.96, 95% CI 0.56-1.64)).

REFERENCES