

BMI and Ovarian Response in IVF: Insights Into a Subset of Underweight Women with Poorer Outcomes

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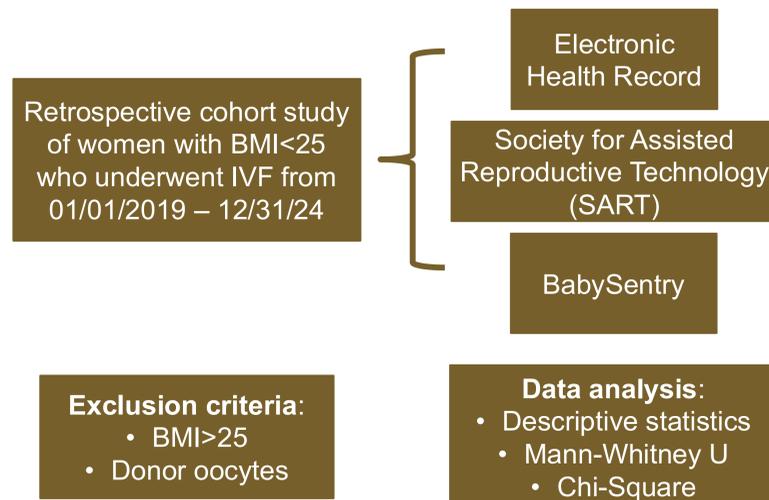
BACKGROUND

- Women with low body mass index (BMI) may have an unexpectedly poor ovarian stimulation response, low oocyte yield, and blastocyst conversion.
- Suboptimal outcomes may be driven by metabolic deficiencies.
- Research on the mediator of poorer in vitro fertilization (IVF) outcomes among patients with BMI <20 remains limited.

OBJECTIVE

- To determine if a subset of women with BMI <20 have poorer assisted reproductive technology (ART) outcomes compared to Anti-Müllerian hormone (AMH)-matched women with BMI of 20-25.

MATERIALS & METHODS



RESULTS

Table 1. Clinical characteristics and outcomes by BMI group (N=507)

| Outcome | BMI 20-25 (n=456) | BMI <20 (n=51) | p-value |
|------------------------------------|-------------------|----------------|---------|
| Age at egg retrieval ^a | 35 (32, 38) | 33 (31, 36) | 0.03 |
| AMH ^a | 2.4 (1.3, 4.3) | 2.0 (1.3, 3.4) | 0.42 |
| Oocytes retrieved ^a | 14 (8, 22) | 11 (7, 20) | 0.13 |
| Oocytes fertilized ^a | 8 (4, 13) | 5 (3, 11) | 0.01 |
| Number of blastocysts ^a | 4 (2, 7) | 3 (2, 6) | 0.14 |
| Normal AMH & <4 blastocysts | 110 (24.1%) | 19 (37.3%) | 0.04 |

^aMedian and interquartile range

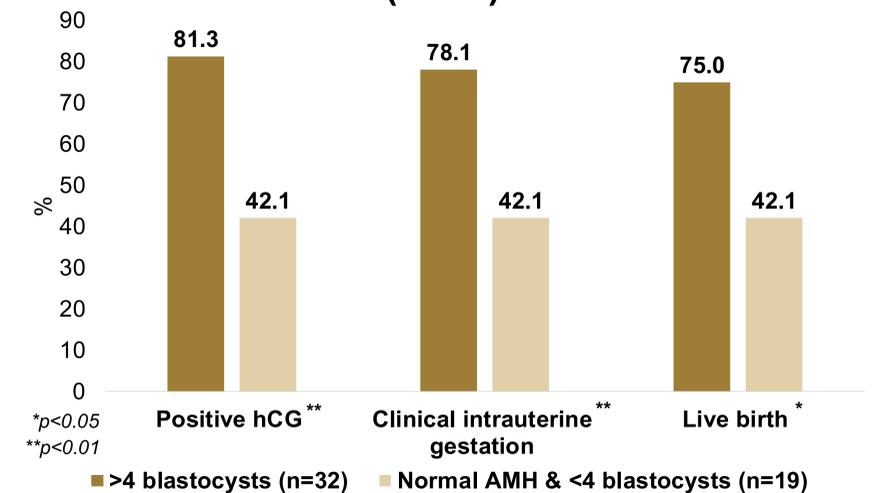
Patients with BMI <20 were younger but did not differ in AMH, oocytes retrieved, peak estradiol, or number of blastocysts.

Among patients with normal AMH, a higher proportion of those with BMI <20 had <4 blastocysts compared with BMI 20–25.

ACKNOWLEDGEMENTS

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Clinical outcomes for patients with BMI <20 (n=51)



Women with normal AMH and <4 blastocysts had significantly poorer pregnancy and live birth outcomes.

CONCLUSIONS

- Patients with **low BMI** exhibited **lower fertilization rates** and **poorer blastocyst development** despite similar AMH and ovarian stimulation response compared to women with normal BMI.
- **Metabolic factors** beyond ovarian reserve may play a role in clinical outcomes in underweight patients undergoing IVF.
- Further studies to evaluate for **metabolic deficiencies** that may identify patients with **low BMI at risk for poor IVF outcomes** are underway.