INTRODUCTION

- Assessment of ovarian reserve with cycle day 2 or 3 FSH and estradiol is one of the critical steps in evaluation of couples seeking treatment for infertility (1).
- Traditionally, an FSH greater than 10 mIU/mL is the level at which diminished ovarian reserve is diagnosed (1).
- Prior studies have shown those with “premature ovarian aging” to have FSH levels less than 10 mIU/mL but who are in either greater than the 95% confidence interval (5,6), or in the highest quartile in their age groups (7).
- Young women in the premature ovarian aging groups had decreased number of oocytes retrieved after ovarian stimulation for in vitro fertilization (IVF) compared to their counterparts despite technically normal FSH levels.
- As FSH level is a widely used marker to guide treatment, it would be valuable to obtain further data regarding pregnancy outcomes in the younger age group of women undergoing IVF to see if a new cut-off level should instead be used.

OBJECTIVES

The aim of this study was to assess whether high-normal basal FSH levels between 8-10 lead to significantly different outcomes for women ages 35 or younger undergoing in vitro fertilization, compared to women with FSH levels less than 8. The primary outcome was clinical pregnancy rates, defined by the presence of fetal heartbeat(s) on ultrasound.

METHODS

- Chart review of all women age 35 or younger who underwent their first IVF attempt between 1/1/2010 and 12/19/2016, all of whom had a day 2/3 FSH and estradiol drawn within one year of their IVF cycle.
- Powered to detect a 20% lower probability of clinical pregnancy in patients with FSH between 8 and 10 compared to FSH under 8 at a one-sided 5% significance level based on prior data (8).
- For the primary analysis, the focus was on comparing patients with FSH under 8 and those with FSH 8 – 10. The probability of clinical pregnancy was compared between the two groups using Pearson’s chi-squared test at a 5% significance level. The difference in the proportion of patients with clinical pregnancy was estimated, and reported with a 95% confidence interval.

RESULTS

- Assessment of ovarian reserve with cycle day 2 or 3 FSH and estradiol is one of the critical steps in evaluation of couples seeking treatment for infertility (1).
- Traditionally, an FSH greater than 10 mIU/mL is the level at which diminished ovarian reserve is diagnosed (1).
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Discussion

Our findings suggest that an FSH level of 8 or greater may be predictive of poorer outcomes with IVF in young women, specifically, with lower clinical pregnancy rates seen in the FSH 8-10 group versus FSH <8. This finding was still significant when controlling for confounding variables via logistic regression analysis. This suggests that in young women, using a cutoff of 8 rather than 10 may identify those who may benefit from more aggressive fertility treatment.

Weaknesses:

- FSH has some inherent variability and is limited as a screening test
- Retrospective study

References

5. Fang E, Su Z, Wang L, Yuan P, Li R, Goung N, Zheng L, Wang W. Predictive value of age-specific FSH levels as a predictor for clinical pregnancy rates (not shown). The area under the curve was 0.55. The highest combination of sensitivity and specificity were seen at an FSH of 6.70 at 64% and 47%, respectively.

Acknowledgement

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