

Reproductive Outcome In Patient With Diminished Ovarian Reserve

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I. Introduction

Ovarian reserve refers to the size of the nongrowing, or resting, primordial follicle population in the ovaries. This ovarian reserve, in turn, presumably determines the number of growing follicles and the "quality" or reproductive potential of their oocytes. Ovarian reserve means the quantity as well as quality of follicles present in the ovary. The total number of oocytes declines with the age of a woman since her birth. Inhibin B secreted by the competent follicles, which have negative feedback on pituitary & FSH secretion occurs , With the progressive fall in follicle number as with age, inhibin B level is reduced. There is rise in FSH level even in the early follicular phase(1) . Premature ovarian failure/menopause prior to age 40 has been associated with an increased number of permutation-level trinucleotide repeat lengths in the FMRI gene. A similar increase has not been consistently confirmed in premenopausal / diminished ovarian reserve women.

II. Method And Material-

Study Design: Retrospective Cohort Study.

Study Population: Reproductive age group women (typically defined as 15-49 years) who sought infertility evaluation at your institute during a specific time frame.

Inclusion Criteria: a) Women within the reproductive age group. b) Those diagnosed with infertility (defined based on standard criteria). c) Availability of relevant clinical, hormonal, blood parameter, and ultrasound data.

Exclusion Criteria: a) Women with known causes of infertility unrelated to the parameters under investigation. b) Incomplete or missing data for essential variables.

Data Collection:

Clinical Data: Extraction of detailed medical histories, including menstrual history, gynecological surgeries, contraceptive use, and lifestyle factors. Examination of clinical findings during infertility assessments.

Hormonal Data: Retrieval of hormonal data from medical records, including FSH, LH, estradiol, progesterone, thyroid hormones, and other relevant markers. Organization of hormonal patterns throughout the menstrual cycle.

Blood Parameter Data: Collection of blood parameters such as CBC, glucose levels, lipid profiles, and inflammation markers from laboratory records.

Ultrasound Data: Retrieval of ultrasound reports focusing on pelvic organs, including the uterus, ovaries, and fallopian tubes. Assessment of the endometrial lining and identification of structural abnormalities or cysts.

Statistical Analysis: Application of appropriate statistical methods (e.g., logistic regression, chi-square tests) to explore correlations and associations between clinical, hormonal, blood parameter, and ultrasound variables.

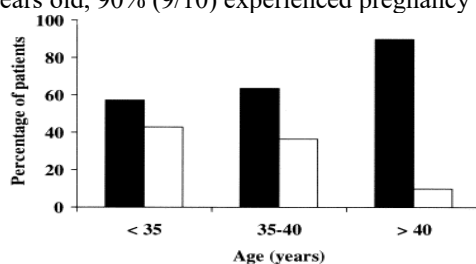
Adjustments for potential confounding factors, if applicable.

Material & Methods Outcome Measuring FSH or estradiol levels is useful as a screening test for decreased ovarian reserve. FSH levels > 10 mIU/mL or estradiol levels \geq 80 pg/mL on day 3 of the menstrual cycle suggest ovarian reserve is decreased.

However, the AMH level and AFC are currently the best tests for diagnosing decreased ovarian reserve .A serum FSH concentration of 14.2 IU/L (using the Immulyte assay) was considered elevated for this study because it was equivalent to 25 IU/L by the Leeco Diagnostics assay.

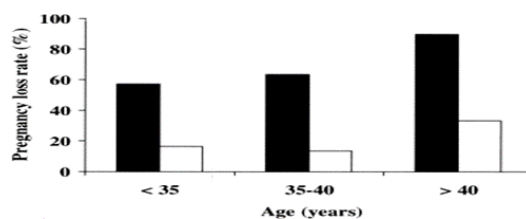
Of the 28 patients with DOR who conceived, 7 patients were <35 years old, 11 patients were 35–40 years old, and 10 patients were >40 years old. Ultimately, 20 of these patients who had documented biochemical pregnancies experienced a reproductive loss (20/28; 71.4%).

Of those patients <35 years old with documented biochemical pregnancies, 57.1% (4/7) experienced pregnancy loss; of patients 35–40 years old, 63.6% (7/11) experienced pregnancy loss; of patients >40 years old, 90% (9/10) experienced pregnancy loss.(Fig1)



(Fig. 1)

Among those patients with normal ovarian reserve (n = 8,768) who had documented biochemical pregnancies, patients <35 years old had a pregnancy loss rate of 16.4%; patients 35–39 years old had a pregnancy loss rate of 13.7%; and patients >40 years old had a pregnancy loss rate of 33.2%. When reproductive outcome in patients with DOR was compared to that of patients with normal ovarian reserve, the rate of pregnancy loss in patients with DOR (Figure 2) was noted to be significantly higher for all age groups (P < .01).



(Fig.2)

Results Pregnancy rates among patients with diminished ovarian reserve remain poor, regardless of age (1–3). Among patients with elevated FSH concentrations, declining follicular function as manifested by impaired ovarian responsiveness results in a decrease in ovarian steroidogenesis (2). Elevated basal FSH concentrations reflect waning granulosa cell inhibin-B production, which may precede detectable elevations of serum FSH in women with decreasing ovarian reserve (12). In addition to the decline in follicular quality in these patients, women with DOR also have a higher percentage of apoptotic granulosa cell mass compared to controls, resulting in diminished follicular quantity as well (3,4). Discussion This study sheds light on the formidable challenges encountered by women with diminished ovarian reserve (DOR) in achieving successful pregnancies. The overall pregnancy rates among patients with abnormal FSH values were notably low at 2.7%, with a substantial pregnancy loss rate of 71.4% among those who did conceive. Importantly, the live birth rate among patients with DOR in this study was merely 0.8%, and the occurrence of live births in patients over the age of 40 with abnormal basal FSH concentration was exceptionally rare. The findings underscore the grim reproductive prognosis associated with elevated basal FSH levels, emphasizing the complexity of conception in this population. The high rate of reproductive loss, even when conception occurs, suggests a significant association between DOR and adverse pregnancy outcomes.

III. Conclusion

This study sheds light on the formidable challenges encountered by women with diminished ovarian reserve (DOR) in achieving successful pregnancies. The overall pregnancy rates among patients with abnormal FSH values were notably low at 2.7%, with a substantial pregnancy loss rate of 71.4% among those who did conceive. Importantly, the live birth rate among patients with DOR in this study was merely 0.8%, and the occurrence of live births in patients over the age of 40 with abnormal basal FSH concentration was exceptionally rare. The findings underscore the grim reproductive prognosis associated with elevated basal FSH levels, emphasizing the complexity of conception in this population. The high rate of reproductive loss, even when conception occurs, suggests a significant association between DOR and adverse pregnancy outcomes.

Reference

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