

9th Yazd International Congress and Student Award on Reproductive Medicine with 4th Congress of Reproductive Genetics

Key Lectures

K-9

Treatment of poor responder patient

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Decrease of ovarian reserve (DOR) is one important reason that negatively affects female fertility. DOR has been found in the 8-15% of assisted reproductive technology cycle. For women over 40 years DOR is about 50%, and 10% of women may experience an early reduction in ovarian reserve regardless of age. To find a proper treatment, first, we need to define DOR or poor responder patients, which two different criteria, named Bologna or Poseidon, shall be studied. Bologna criteria include Maternal age ≥ 40 years or any other risk factors for DOR, antral follicle count $< 5-7$ follicles or anti-mullerian hormone (AMH) $< 0.7-1.3$ (ng/ml), and a previous DOR < 3 oocytes with a conventional controlled ovarian hyperstimulation (CoH). According to the Poseidon classification patient are subdivided into four subgroups based on first, age, second, antral follicle count or AMH, third, ovarian response, and finally, expected poor responder.

There are different lab tests for diagnosis of DOR including, FSH/E2, inhibin B, AMH (in day 2-3 menstrual cycle), and more recently insulin-like growth factor-1 in day 3 menstrual cycle. Additionally, transvaginal sonography is also

recommended as another diagnosis method. To reach the best outcome of treatment in poor responder patient, it is recommended to decrease the required time to cumulative live birth rate per cycle, which is mainly dependent on the number of oocytes and an euploid embryos. For optimization of the oocyte number per ovarian cycle in DOR, there are number of recommendations to follow:

- Long protocol with conventional COH as the first choice for the subgroup of Poseidon 3 or 4.
- Mild stimulation protocol
- Dual stimulation protocol

To achieve better outcome adjuvant therapy in DOR patients is recommended as following:

- Growth hormone (GH)
- DHEA and other androgens
- LH supplementation

As known before, gonadotropin is commonly used in the COH cycle for poor responder patients. Current evidence supports a maximum daily dose of 300 IU of FSH, contrary to the previous recommendation of 600 IU. As mentioned before, the best outcome in poor responder patients is to obtain a euploid embryo. Because the availability of at least one euploid embryo increases the rate of pregnancy in poor responder patients up to approximately 60%, no matter the age. However, new evidence from basic science studies provides a biological explanation for the age-related effect on aneuploidy. This is due to impaired mitochondrial function, increased granulosa cell apoptosis, and increased level of oxidative stress in germline cells.