# LH priming before ovarian stimulation in poor responders: a self-controlled study comparing long protocol with LH priming *vs*. antagonist protocol

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## Introduction

Poor Ovarian Response (POR) is a major challenge in IVF, particularly in women with Advanced Maternal Age (AMA), where Diminished Ovarian Reserve (DOR) and oocyte quality loss reduce success rates <sup>[1,2]</sup>. The POSEIDON classification highlights the need for tailored strategies, especially for POSEIDON-4 patients, who represent the majority of POR cases. Previous studies suggest that the long protocol with LH priming yields better outcomes than the antagonist protocol in poor responders, but further validation is required <sup>[3]</sup>. Given the potential of LH priming to enhance follicular recruitment, this study compares both protocols within the same patients to assess improvements in ovarian response and clinical outcomes.

### Aims

The primary objective of this study was to evaluate the efficacy of the long protocol with a seven-day LH priming regimen under GnRH agonist downregulation in poor responders. The study assessed key outcomes, including the total number of oocytes retrieved, metaphase II (MII) oocytes, fertilization rates, viable embryo yield, cycle interruption rates, and clinical pregnancy rates. Forty-five women with poor ovarian response served as their own controls, first undergoing an ovarian stimulation cycle with an antagonist protocol, which failed, and subsequently repeating the cycle using a long protocol with a seven-day LH priming regimen under GnRH agonist downregulation.

### **Results**

The long protocol with LH priming demonstrated a significant improvement in ovarian response compared to the antagonist protocol. It resulted in a higher number of total and MII oocytes, improved fertilization rates, and an increased number of viable embryos transferred. Cycle interruption rates were notably lower with the long protocol (28.89% vs. 46.67% in the antagonist protocol). Additionally, clinical pregnancy rates were significantly higher, with 12 pregnancies in the LH priming group versus 3 in the antagonist group. One pregnancy occurred in a patient who had failed to reach embryo transfer in the antagonist cycle, emphasizing the protocol's potential for rescuing poor responders.

## Conclusions

The long protocol with LH priming significantly improved ovarian stimulation outcomes in poor responders, enhancing both oocyte quantity and quality. The reduced cycle discontinuation rate indicates a more effective stimulation approach. These findings support the use of LH priming in clinical practice, though further prospective studies are necessary to refine patient selection and optimize treatment strategies.

#### **Bibliography**

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