



Long-term administration of LH as a fertility preservation strategy in hypothalamic amenorrhea: evidence from a case report

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Introduction

Hypogonadotropic hypogonadism (HH) is defined as gonadal insufficiency associated with impaired gametogenesis and reduced gonadal steroid production due to impaired gonadotropin production or action. A number of these patients have difficulty achieving pregnancy and the management of fertility treatment is particularly challenging. Several therapeutic strategies have been proposed, as using exogenous gonadotropins (Gn) with LH supplementation. However, there are few data in the literature on strategies to restore ovarian response in women with history of empty follicle syndrome.

Objectives

To show that LH priming treatment can improve egg yield in patients with HH, reduced ovarian reserve and previous empty follicle syndrome. We report a single-case report detailing an ovarian stimulation for oocyte cryopreservation in a patient with HH and previous empty follicle syndrome.

Methods

A healthy 33-year-old woman was referred for fertility preservation. She reported a family history of premature ovarian failure. She was amenorrhoeic for 2 years, whereas she previously reported regular cycles every 25 days. The patient had a BMI of 21.3 kg/m², FSH 0.3 IU/L, LH 0.1 IU/L and estradiol of 61 pg/ml. The ovarian reserve markers were AMH 0.68 ng/ml and AFC 5. The other pituitary axes were normal.

Results

The patient was treated with recombinant human FSH (rFSH) and recombinant human LH (rLH) at a dose of 300 IU/150 IU per day, following a flexible GnRH antagonist protocol. After 15 days of stimulation, 7 follicles of at least 16 mm developed with estradiol and progesterone levels of 1109 pg/ml and 0.9 ng/ml, respectively. The patient received a single injection of recombinant hCG at a dose of 10000 IU to induce final follicular maturation but 36 hours later no oocytes were retrieved. It was decided to pre-treat the patient with exogenous LH administration for 4 months at a dose of 187.5 IU daily. During the period of LH administration, the patient underwent regular clinical and ultrasound checks (every 2-3 weeks). The patient underwent the second OS cycle, based again on the administration of 300 IU/150 IU per day of rFSH and rLH, according to a flexible GnRH antagonist. After 10 days of stimulation, the ovaries had 12 follicles of at least 16 mm, and the estradiol and progesterone levels were 1665 pg/ml and 1.1 ng/ml, respectively. After rhCG administration, oocyte retrieval resulted in the recovery of 6 metaphase II (MII) oocytes.

Conclusions

Pre-treatment with LH for at least three months before ovarian stimulation improve oocyte yield in a patient with HH and previous empty follicle syndrome.

Bibliography

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