

Conference Paper

Corifollitropin Alfa: One Shot Injection for IVF

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1. Introducing

Controlled ovarian stimulation (COS) has been recognized as a painstaking process for many people. It involves the maintenance of extended control over endogenous reproductive hormones and continuous dosing with exogenous hormones via abdominal injection [1].

The long GnRHa protocol has been the most commonly used COS protocol for about two decades. While effectively preventing premature LH surges and maintaining multi-follicular growth, the long GnRHa protocol requires approximately 3 weeks of self injections on the part of the patient. Daily GnRHa injections are started from the midluteal phase of the preceding cycle, and daily gonadotropin injections are added within the first week of menstruation. Both injections are continued until follicles reach adequate size. While GnRHa injections last around 20 days, gonadotropin injections last 10–12 days on average, depending on the individual ovarian response [1,2].

Corifollitropin alfa (Elonva) is the first hybrid molecule with sustained follicle-stimulating activity [3]. This novel molecule is a fusion product of human follicle stimulating hormone (FSH) and the carboxy-terminal peptide of human chorionic gonadotropin (hCG). Its use was developed as part of a GnRH antagonist protocol [1,3].

It has the same pharmacologic activity as FSH and recombinant follicle stimulating hormone (rFSH), interacts only with the FSH-receptor and lacks LH activity (Lapoltet al., 1992; Fauseret al., 2009) but a slower absorption rate and approximately 2-fold longer elimination half-life ($t_{1/2}$) and an almost 4-fold extended time-interval (t_{max}) to peak serum levels (C_{max}) (Duijkerset al., 2002) of rFSH. Corifollitropin alfa is able to initiate and sustain follicular growth for an entire week, so a single injection of the recommended dose can replace the first seven daily injections of gonadotropin (FSH) in each ovarian stimulation treatment cycle prior to assisted reproduction. Thus, corifollitropin alfa can reduce the number of injections needed for COS before in vitro fertilization (IVF) or intracytoplasmic sperm injection (ICSI) and may lower the treatment burden

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| Characteristics | Corifollitropin Alfa | |
|--------------------------|----------------------|--------|
| | Mean | Range |
| Age (year) | 35 | 21-44 |
| BMI (kg/m ²) | 23.53 | 16-34 |
| Add dose rFSH (IU) | 600 | 0-3000 |
| Matur egg (%) | 10 | 0-37 |
| Pregnancy (%) | 2 | 1-2 |

TABLE 1: Characteristics and results controlled ovarian stimulation with one shot injection corifollin alfa.

and stress [1-3]. The optimal dose of corifollitropin alfa has been calculated to be 100 μg for patients weighing ≤ 60 kg and 150 μg for patients weighing > 60 kg [1-4].

After a single s.c injection of corifollitropin alfa on menstrual cycle day 2 or 3 (stimulation day 1), treatment may be continued with a daily dose of rFSH from stimulation day 8 onwards if needed. Patients who reach the criteria of triggering final oocyte maturation prior to day 8 of stimulation do not require any daily FSH to be administered. A gonadotropin releasing hormone antagonist is associated starting on stimulation day 5 to prevent premature LH surge. (1, 5)

Using these dosing criteria, previous studies have shown that administration of corifollitropin alfa is safe, effective, and well tolerated and that it does not result in antibody formation. Tarlatzis et al. reported no increase in the risk of ovarian hyperstimulation syndrome (OHSS) in infertile women receiving corifollitropin alfa; however, a recent systematic review suggested that there is evidence of increased ovarian response and risk of OHSS in corifollitropin alfa treatment [1].

2. Material & Methods

We retrospectively analyzed a total of eighty patients undergoing IVF stimulation in Yasmin IVF Clinic, RSCM Jakarta, using the combination of corifollitropin alfa (Elonva) with rFSH, whereas final oocyte maturation was induced by GnRh analogues. The hormonal profiles were analyzed, as well as the clinical outcome. All patients were recruited between March-November 2013. They were all younger than 44 years and had a variety of BMI (16-34) kg/m² and did not have any previous IVF stimulation.

BMI, Body mass index; rFSH, recombinan Folikel stimulating hormon

2.1. Statistical Analysis

Statistical analysis of mean values was performed using SPSS ver.22.

3. Result

A total of eighty patients undergoing IVF stimulation in this study between March-November 2013.

A show in this table the median age of the patients was 35 years (21-44) and 23.53 kg/m² (16-34) for normal BMI. And the additional dosages of rFSH 600 IU (0-3000) with average of oocyte matured egg cells 10 (0-37). Clinical pregnancy rates of 2 pregnancy (1-2).

4. Discussion

The standar protocol of controlled ovarian stimulation with antagonist protokol, in this study we give one shot injection of corifollitriptin alfa, corifollin alfa is a fusion product of human follicle stimulating hormone (FSH) and the carboxy-terminal peptide of human chorionic gonadotropin (hCG). This injection give in the menstrual cycle day 2, than treatment may be continued with a daily dose of rFSH from stimulation day 8 if needed.

In this sudy we conclusion that administration of corifollitriptin Alfa (Elonva) in the controlled ovarian stimulation followed with rFSH and induction of final oocyte maturation by GnRH agonists proved to be an efficient alternative to classical ovarian stimulation for IVF because in lower additional dosages.

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