



The importance of LH in controlled ovarian stimulation. Can a lower threshold be defined?

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Objective:

to analyse the outcome of IVF/ICSI in relation to se-LH levels on stimulation day 1 above and below 1.2 IU/L in women treated with long protocol GnRH-a down regulation followed by ovarian stimulation with either rFSH or hMG.

Design:

analysis of combined data from a retrospective and a prospective study published previously (1,2).

Setting(s):

University hospital based fertility clinic.

Materials and methods:

A total number of 507 normogonadotropic women, who were treated for infertility with IVF or ICSI were included. All women were subjected to a standardized hormonal treatment regime, including pituitary down-regulation with Buserelin from cycle day 21 for fourteen days. After down-regulation was ascertained by ultrasound and se-E < 200 pmol, all women were treated with rFSH or hMG 225 IU/day for 7 days. Hereafter, the dose of gonadotrophins was individualized according to ovarian response. Ovulation induction with sc hCG (10.000 IU) was given when at least 4 follicles with diameter of 17 mm was seen by ultrasound. Oocytes were retrieved 36 hours later by ultrasound guided aspiration. After fertilization embryos were cultured for 3 days, and a maximum of 2 embryos transferred back to the uterus.

Results:

Of the 507 women 283 (56%) had se-LH on stimulation day 1 above 1.2 IU/L, and the remaining 224 (44%) below that level. In the former group (LH > 1.2), 174 and 109 were treated with rFSH and hMG, respectively. The rate of pregnancy and delivery was similar, rFSH: 42% and 33%; hMG: 47% and 36%, while the implantation rate was higher in the hMG group 31% vs. 26% in the rFSH group ($p = 0.05$). In the group of women with LH < 1.2, 165 and 59 were treated with rFSH and hMG, respectively. Pregnancy and delivery rates were significantly higher in the hMG group: 58% and 49%, compared to the rFSH group: 38% and 27%, respectively ($p < 0.01$ and < 0.005). The implantation rate in the hMG group was 37%, which is significantly higher than in the 22% found in the rFSH group ($p < 0.005$).

Conclusion:

A serum LH level of 1.2 IU/L at the start of ovarian stimulation seems to constitute a clinically significant threshold. Patients who experience se-LH under 1.2 IU/L on stimulation day 1 will benefit from co-administration of LH during ovarian stimulation for ART.

1) Westergaard L.G. et al., Hum. Reprod. 15: 1003-8, 2000.

2) Westergaard L.G. et al., Fertil. Steril. 76: 543-9, 2001.

