

Lutropin Alfa

A Viewpoint by Peter Humaidan

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According to the two cell–two gonadotropin theory, both follicle stimulating hormone (FSH) and luteinizing hormone (LH) are required for normal folliculogenesis in humans. With the development of recombinant human LH (r-hLH) [lutropin alfa], it is now possible to add LH activity of high consistency to the stimulation protocol without the human chorionic gonadotropin (hCG) content of human menopausal gonadotropin (hMG). The primary target group of r-hLH is the hypogonadotropic hypogonadal patient in whom a dosage of 75 IU/day has proven to be sufficient to promote optimal follicular development in conjunction with FSH.

There has been a gradual shift from hMG (with equal amounts of FSH and LH-like activity [hCG and LH]) to recombinant human FSH (devoid of LH activity). An increasing body of scientific evidence has raised the question as to whether the LH hormonal environment achieved after downregulation with gonadotropin-releasing hormone (GnRH) agonists or GnRH antagonists and stimulation with pure FSH preparations is really optimal for all categories of

patients, or whether subgroups of patients exist that might actually benefit from exogenous LH supplementation.

Until now, few prospective studies have addressed the effect of r-hLH supplementation in mostly unselected downregulated normogonadotropic patients. Subgroup analyses of these studies have identified the following groups of patients who seem to benefit from LH supplementation: (i) patients aged >35 years; (ii) normogonadotropic patients with an initial low response to stimulation; (iii) patients with profound suppression of LH; and (iv) patients with high endogenous LH levels after GnRH agonist downregulation.

Day 8 of the downregulated cycle seems to be an appropriate day to start r-hLH supplementation in a ratio of 1 LH : 2 FSH administered subcutaneously once daily in conjunction with FSH. The 'ceiling' level of r-hLH exceeds 375IU when given in conjunction with FSH. Clearly, more studies are needed to investigate subgroups, the optimal day to start r-hLH supplementation and the dose. With the availability of r-hLH an important further step towards individually tailored stimulation protocols has been taken. ▲