

IMPORTANCE OF HIGH PROGESTERONE LEVELS IN THE FOLLICULAR PHASE

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Ovarian stimulation is performed for IVF with the aim of obtaining a proper number of oocytes to ensure the selection of good quality embryos for transfer; However, it causes a dramatic variation of the normal hormonal profile on the menstrual cycle, that includes a 5 to 10 fold increase on Estradiol (E_2) serum levels in the follicular phase, due to multiple follicular development, and a subtle raise in serum progesterone (P) levels, before the human chorionic gonadotrophin (hCG) administration.

The influence of elevated serum P levels during IVF cycles on pregnancy rates is a matter of continued debate amongst fertility clinicians. Efforts to resolve this question have been impeded by the various assays used to measure P and the different, arbitrary threshold values for defining 'high' P levels. Although there is not a clear consensus to define a detrimental P level, most authors use a value between 1.0 and 1.5 ng/mL for cut-off level. This elevation has been shown to occur in a considerable number of IVF cycles, and for both kind of GnRH analogues used for preventing a premature LH surge. Thus, in GnRH agonist cycles, it has been described in 5 to 35% of cycles and in 20 to 38% of GnRH antagonist cycles.

In a recent study, the ongoing pregnancy rate has been related to serum P level the day of hCG administration in an unselected population of more than 4,000 cycles. In it, it is clearly shown that success rate is significantly decreased when P was > 1.5 ng/mL, regardless the type of GnRH analog used. Whether this detrimental effect on cycle outcome is due to a negative impact on the oocyte-embryo quality or on endometrium receptivity remains unclear. While data from studies performed in oocyte donation cycles suggest that the oocyte and embryo qualities are unaffected by high P levels, a very recent study shows that the endometrium gene expression profile at the time of implantation is significantly altered on samples of women with $P > 1.5$ ng/mL.