

Evaluation of an Optimal Luteal Phase Support in ART -Crinone

Robert Fischer

Fertility Center, Hamburg 20095, Germany

Progesterone is used in many ART procedures to improve endometrial receptivity. The progesterone-induced endometrial changes lead to an optimal, transitory "window of receptivity" for embryos from cycle days 16 to 18.

GnRH-puls intervals in the natural luteal phase are of three hours resulting in a progesterone delivery of about 25 mg/24 hrs.

The vast majority of ART cycles employ GnRH-agonist pre-treatment, pituitary recovery following this treatment is not completely restored for 2~3 weeks. GnRH-agonist down-regulation persists into the luteal phase and can have a detrimental effect on the corpora lutea.

Thus several studies demonstrated an improvement of ART outcomes with luteal phase support. The efficacy, tolerability, convenience, side effects and costs will influence the choice in luteal phase management. Routes of progesterone administration can be intramuscular (IM),

Oral, vaginal and other ways. Many distinguished investigators have noted an increased pregnancy rate in cycles with luteal phase support, be it progesterone or hCG. Progesterone is the treatment of choice because the use of hCG is associated with higher rates of OHSS.

Oral progesterone administration does not produce adequate endometrial response.

Intramuscular progesterone administration is widely used. Vaginal administration compared to I.M. resulted in overall improved endometrial maturation even with serum levels that were 10 fold less.

Drug diffusion studies by Bullett et al. could demonstrate that progesterone was found in the endometrium at maximum concentrations at 4~6 hours after administration. So despite lower serum progesterone levels after vaginal administration, endometrial levels were higher compared with I.M.

To overcome problems of varied absorption of an oil-based product, Crinone is natural progesterone in a bio adhesive vaginal delivery system. The carrier vehicle is an oil in water emulsion containing polycarbophil. Progesterone is partially soluble in both the water and oil phase with the majority of progesterone existing as a suspension. Local vaginal application leads to immediate uptake at the uterus while serum levels are sub physiologic. (8.99 ng/ml).

Studies comparing Crinone and I.M. luteal support show equal pregnancy and miscarriage rates but Crinone is highly preferred by patients to I.M. progesterone.