II.2 Oocyte/corpus luteum quality

PICO Question: What is the reliability of parameters detecting good oocyte/ corpus luteum quality?

Mid-luteal phase progesterone levels

Evidence

A cohort study, including 138 cycles from 72 women with no physical cause for infertility investigated the association between midluteal serum progesterone and conception and reported that the lowest progesterone threshold for conception cycles was 8.5 ng/ml (equals 27.03 nmol/L) (Hull et al., 1982).

Recommendation

In women with regular menstrual cycles, it is suggested not to routinely measure midluteal serum progesterone levels.	Conditional ⊕◯◯◯

Justification

There was only one study, which identified midluteal progesterone levels in natural conception and reported the lowest progesterone level to obtain pregnancy. There are no studies conclusively documenting a minimum midluteal serum progesterone level required for the occurrence of pregnancy. Even if the presence of a threshold of midluteal serum progesterone level below which pregnancy and live birth rates are decreased is assumed, there is no evidence showing an increase in live birth rates with exogenous progesterone administration in any form.

On the other hand, recent data from studies on frozen embryo transfer in a natural cycle and one study involving women with UI undergoing ovarian stimulation (OS) and intrauterine insemination (IUI) suggest an association between luteal phase progesterone levels and probability of a pregnancy and live birth (Gaggiotti-Marre et al., 2020, Hansen et al., 2018). Given the limited information on an association between luteal progesterone levels and spontaneous pregnancy this is an area that requires further research.

Further information

Details of the literature study and evidence tables are available in Annex 6 and Annex 7 (question II.2).

Endometrial biopsy

Evidence

In an RCT, 287 ovulatory female partners of infertile couples and 332 fertile controls were randomized to undergo histological examination of an endometrial biopsy in the midluteal or late luteal phase of the menstrual cycle. The prevalence of out of phase endometrial biopsy results were similar between fertile and infertile women in adjusted analyses. Receiver operating characteristics (ROC) curves showed less than 0.5 area under the curve (AUC) values for endometrial biopsy to differentiate fertile and infertile women (Coutifaris et al., 2019).