IMPLICATION OF OESTRADIOL IN HUMAN EMBRYO IMPLANTATION IN IN-VITRO FERTILIZATION (IVF) PROGRAM

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In-Vitro Fertilization

Controlled Ovarian Hyperstimulation

GnRHa (long or short protocol)

Serum E2 and Progesterone \( \downarrow \) during luteal phase
Luteal Phase Support

Progesterone (intramuscular, vaginal)

hCG

Oestradiol?
OBJECTIVE

To understand the implication of oestradiol during the midluteal phase in human embryo implantation and its potential use in luteal phase support of IVF programmes.
METHODS

Selection of literature:

computerized bibliographical search (MEDLINE).
RESULTS

The impact of serum oestradiol concentration and/or E2 support on the outcome of IVF-ET remains controversial
RESULTS

Detrimental effect of high serum levels on IVF outcome

Forman et al., 1988

No detrimental effect of serum E2 on the IVF outcome

Sharara and McClamrock et al., 1999

Oestradiol support improves the IVF outcome
(Prospective and randomized study)

Farhi et al., 2000
DISCUSSION

Controversy: Why?

Heterogeneity of variables between studies:

- Studied population
- Protocols for COH
- E2 assays
- Luteal support regimens
DISCUSSION

Several physiological and biological arguments may support the beneficial effect of E2 use during the midluteal phase.
DISCUSSION

Serum E2 during midluteal phase:

Higher in natural cycles with conception

Stewart et al., 1993
Baird et al., 1997

Supports or reflects implantation?
DISCUSSION

Progesterone induces the downregulation and E2 induces the upregulation of E2 and P receptors in the endometrium.

E2 during the midluteal phase:

Expression of progesterone receptors and consequently progesterone response (decidualization) are maintained.
CONCLUSION

- The role of oestradiol on the outcome of IVF-ET cycles remains controversial
- E2 may be implicated in the implantation process during the midluteal phase
- E2 supplementation improves the implantation rate in IVF long protocols (GnRHa)
- Further clinical or even experimental studies should better evaluate the specific effect of midluteal oestradiol in order to assess its real benefit in ART