



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 ↓
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**