The role of luteal phase support in infertility treatment: a meta-analysis of randomized trials

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Authors' objectives
To determine whether the use of luteal phase support improves pregnancy rate in infertility.

Searching
MEDLINE was searched from 1971 to 1992 using the keywords 'luteal', 'pregnancy', 'human' and 'comparative', and the MeSH terms 'P', 'hCG', 'infertility' and 'IVF' (in vitro fertilisation). Bibliographies of relevant articles, reviews and abstracts of scientific meetings were handsearched from 1978 to 1992 for additional material.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials were included.

Specific interventions included in the review
Luteal phase support.

Participants included in the review
Women undergoing infertility treatment (number of patients not given).

Outcomes assessed in the review
Pregnancy per cycle was the primary outcome measure; the rates of spontaneous abortion and ovarian hyperstimulation syndrome were assessed as secondary outcomes.

How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, but studies had to compare luteal support with no treatment or 2 regimens of support, and luteal support had to be administered on at least 2 days in the luteal phase.

Assessment of study quality
A score was given to each trial using a scoring system based on 6 methodological variables: randomisation, demographics of groups, placebo use, follow-up, cointervention, patients and cycles differentiated. Two reviewers independently assessed and ranked each trial for its methodological rigour and its potential to introduce bias. The level of agreement was estimated using the Kappa statistic.

Data extraction
The authors do not state how the data were extracted for the review, or how many of the authors performed the data extraction.

Methods of synthesis
How were the studies combined?
Outcome data were summarised in 2x2 tables and odds ratios (ORs) were calculated for each treatment intervention. An overall combined OR together with its 95% confidence interval (CI) was also calculated using the Mantel-Haenszel method.

How were differences between studies investigated?
Tests of homogeneity of treatment effect were performed using the Breslow and Day method (see Other Publications of Database of Abstracts of Reviews of Effects (DARE)) Produced by the Centre for Reviews and Dissemination Copyright © 2019 University of York
Related Interest).

**Results of the review**
Twenty studies were included.

The pregnancy rate was significantly higher in groups treated with progesterone (P) or progestogen than in the controls (common OR 1.2, 95% CI: 1.0, 1.7), and the treatment effects did not show significant heterogeneity (8 trials included).

When human chorionic gonadotropin (hCG) was compared with P or progestogen, no significant difference in the overall combined pregnancy rates was found (4 trials included). Combining the results from 2 trials using gonadotrophin-releasing hormone agonist (GnRH-a) as part of the IVF protocol showed a significantly higher pregnancy rate with hCG (OR 2.0, 95% CI: 1.1, 3.9).

There was a tendency toward a lower rate of spontaneous abortion in patients given luteal phase support but the effect was not statistically significant (OR 0.8, 95% CI: 0.4, 1.7).

The overall incidence of ovarian hyperstimulation syndrome rate with hCG use was 5%, whereas no cases of ovarian hyperstimulation syndrome were observed when P or no treatment was used.

**Authors’ conclusions**
The meta-analysis supports the routine use of hCG in IVF cycles using a GnRH-a. P was also beneficial for luteal phase support in IVF. Further research is needed to evaluate the role of luteal support for other infertility therapy.

**CRD commentary**
It is unclear why searches were only performed up to 1992, when the paper was published in 1994.

**Bibliographic details**

**PubMedID**
8194619

**Other publications of related interest**

**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
Abortion, Spontaneous /epidemiology; Chorionic Gonadotropin /therapeutic use; Clinical Trials as Topic; Female; Humans; Incidence; Infertility, Female /drug therapy /epidemiology /physiopathology; Luteal Phase /physiology; Ovarian Hyperstimulation Syndrome /epidemiology; Pregnancy; Progesterone /therapeutic use; Prospective Studies; Randomized Controlled Trials as Topic

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.