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[Overview of Reviews]

Assisted reproductive technology: an overview of Cochrane Reviews

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ABSTRACT

Background

As many as one in six couples will encounter problems with fertility, defined as failure to achieve a clinical pregnancy after regular intercourse for 12 months. Increasingly, couples are turning to assisted reproductive technology (ART) for help with conceiving and ultimately giving birth to a healthy live baby of their own. Fertility treatments are complex, and each ART cycle consists of several steps. If one of the steps is incorrectly applied, the stakes are high as conception may not occur. With this in mind, it is important that each step of the ART cycle is supported by good evidence from well-designed studies.

Objectives

To summarise the evidence from Cochrane systematic reviews on procedures and treatment options available to couples with subfertility undergoing assisted reproductive technology (ART).

Methods

Published Cochrane systematic reviews of couples undergoing ART (in vitro fertilisation or intracytoplasmic sperm injection) were eligible for inclusion in the overview. We also identified Cochrane reviews in preparation, for future inclusion.

The outcomes of the overview were live birth (primary outcome), clinical pregnancy, multiple pregnancy, miscarriage and ovarian hyperstimulation syndrome (secondary outcomes). Studies of intrauterine insemination and ovulation induction were excluded.

Selection of systematic reviews, data extraction and quality assessment were undertaken in duplicate. Review quality was assessed by using the AMSTAR tool. Reviews were organised by their relevance to specific stages in the ART cycle. Their findings were summarised in the text and data for each outcome were reported in 'Additional tables'.

Main results

Fifty-eight systematic reviews published in *The Cochrane Library* were included. All were high quality. Thirty-two reviews identified interventions that were effective ($n = 19$) or promising ($n = 13$), 14 reviews identified interventions that were either ineffective ($n = 3$) or possibly ineffective ($n=11$), and 12 reviews were unable to draw conclusions due to lack of evidence.

An additional 11 protocols and one title were identified for future inclusion in this overview.

Authors' conclusions

This overview provides the most up to date evidence on ART cycles from systematic reviews of randomised controlled trials. Fertility treatments are costly and the stakes are high. Using the best available evidence to optimise outcomes is best practice. The evidence from

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this overview could be used to develop clinical practice guidelines and protocols for use in daily clinical practice, in order to improve live birth rates and reduce rates of multiple pregnancy, cycle cancellation and ovarian hyperstimulation syndrome.

PLAIN LANGUAGE SUMMARY

Assisted reproductive technology: an overview of Cochrane Reviews

Background

As many as one in six couples encounter problems with fertility, defined as failure to achieve a clinical pregnancy after regular intercourse for 12 months. Increasingly, couples are turning to assisted reproductive technology (ART) for help with conceiving and ultimately giving birth to a healthy live baby of their own. Fertility treatments are complex and costly, and each assisted reproduction cycle consists of several steps. If one of the steps is incorrectly applied, the stakes are high as conception may not occur. With this in mind, it is important that each step involved in ART is supported by good evidence from well-designed studies. Cochrane reviewers examined the evidence from Cochrane systematic reviews on ART published in *The Cochrane Library*.

Study characteristics

We included 58 Cochrane systematic reviews on various stages in the ART cycle. All were high quality. Reviews of in vitro fertilisation (IVF) and intracytoplasmic sperm injection (ICSI) were included in the overview. Reviews of intrauterine insemination and ovulation induction were not included. This overview provides the most up to date evidence from truly randomised controlled trials for ART cycles.

Key results

Thirty-two reviews identified interventions that were effective or promising, 14 reviews identified interventions that were ineffective or possibly ineffective, and 12 reviews were unable to draw conclusions due to lack of evidence. Use of the evidence from this overview to guide clinical practice should help to improve live birth rates and reduce rates of multiple pregnancy, cycle cancellation and ovarian hyperstimulation syndrome.