

# INPLASY

## The Efficacy of Luteal Phase Support in Women with Polycystic Ovary Syndrome Following Assisted Reproductive Technology: A Systematic Review

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### ADMINISTRATIVE INFORMATION

**Support** - None.

**Review Stage at time of this submission** - Completed but not published.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY202440019

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 04 April 2024 and was last updated on 04 April 2024.

### INTRODUCTION

**Review question / Objective** To evaluate the efficacy of luteal phase support in women with Polycystic Ovary Syndrome (PCOS) who are undergoing assisted reproductive technology (ART).

**Rationale** The luteinizing hormone (LH) plays a pivotal role in upholding the function of the corpus luteum. It stimulates the release of progesterone and growth factors that are instrumental in processes like embryo implantation and placenta development. Luteal phase support (LPS) is a crucial aspect of assisted reproductive technology (ART). In ART, the woman's pituitary gland is suppressed for controlled ovarian stimulation, yielding more mature eggs for external fertilization. However, intense stimulation can result in a luteal phase defect due to inadequate progesterone

production by the corpus luteum, compromising implantation chances. Without LPS post in vitro fertilization, the luteal phase often shortens, leading to early bleeding. Thus, LPS is vital for luteal stability and early pregnancy support.

**Condition being studied** Women with Polycystic Ovary Syndrome (PCOS) who are undergoing assisted reproductive technology (ART).

### METHODS

**Search strategy** The databases are: EMBASE, PubMed, and Scopus. We search with terms "Polycystic ovarian syndrome", "Polycystic ovary syndrome", "PCOS AND Luteal phase", "Luteal support", and "luteal phase support".

**Participant or population** Reproductive aged women diagnosed with Polycystic Ovary

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Syndrome (PCOS) by gynecologist who are undergoing assisted reproductive technology (ART).

**Intervention** Luteal phase support medication (e.g progesterone).

**Comparator** Different modalities of luteal phase support medication (such as oral, intramuscular, and intravaginal route).

**Study designs to be included** Randomized controlled trial, cohort.

**Eligibility criteria** The inclusion criteria are studies investigating the efficacy of luteal phase support in women with Polycystic Ovary Syndrome (PCOS) who are undergoing assisted reproductive technology (ART), without language, time, and country restriction. The exclusion criteria are studies not exclusive to PCOS diagnosis (there are other disease).

**Information sources** Electronic databases such as EMBASE, PubMed, and Scopus.

**Main outcome(s)** Pregnancy rates.

**Data management** Dual authors took on the task of poring over the complete texts and gleaning pertinent details, including study demographics, quality evaluations, and core findings. Information was drawn solely from studies that aligned with our preset criteria. If studies were replicated, we prioritized the latest comprehensive version. When data extraction disagreements arose, they were amicably settled through dialogue or by seeking the insights of seasoned authors. Two independent evaluators gauged the integrity of the methods employed in the selected studies. Compiled data are managed in Microsoft Excel.

**Quality assessment / Risk of bias analysis** The Risk of Bias 2 (ROB2) tool was deployed for RCTs, whereas cohort studies were appraised using the Newcastle-Ottawa Scale (NOS) tool.

**Strategy of data synthesis** We synthesize data of pregnancy rates in each intervention group, and compare outcome data between two intervention groups using risk ratio, odds ratio.

**Subgroup analysis** None.

**Sensitivity analysis** None.

**Language restriction** No language restriction.

**Country(ies) involved** Indonesia.

**Keywords** polycystic ovary syndrome; progesterone; luteal phase support.

**Dissemination plans** We plan to publish the systematic review results in Scopus accredited journal.

#### **Contributions of each author**

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