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INPLASY

In Vitro Fertilization and Postpartum Hemorrhage: 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.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 20 November 2024 and was last updated on 20 November 2024.

INTRODUCTION

Review question / Objective In our systematic review, we are researching the PICO question of if (P) people of child-bearing potential who had given birth to a singleton pregnancy (I) conceived via in vitro fertilization (C) compared to people of child-bearing potential who conceived naturally (O) had an increased incidence of postpartum hemorrhage.

Rationale Despite the increasing rates of successful in vitro fertilization pregnancies in recent years, there are an array of potential risks and complications. Emerging studies suggest in vitro fertilization may be linked to a higher incidence of postpartum hemorrhage. To our knowledge, at the time of writing, there have been no systematic reviews published that specifically researched the correlation between IVF and incidence of postpartum hemorrhage. The purpose of this review is to assess the impact of in vitro fertilization compared with spontaneous conception on the incidence of postpartum hemorrhage in people of child-bearing potential women with singleton pregnancies.

Condition being studied Use of in vitro fertilization and the incidence of postpartum hemorrhage.

METHODS

Search strategy A Boolean search strategy was utilized and consisted of the following phrases, ("ivf or in vitro fertilization or assisted conception or art or assisted reproductive technology"), AND ("postpartum hemorrhage or postpartum bleeding or pph or postpartum haemorrhage").

Participant or population People of child-bearing potential who had given birth to a singleton pregnancy.

Intervention People of child-bearing potential who conceived via in vitro fertilization.

Comparator People of child-bearing potential who conceived naturally.

Study designs to be included All study designs were included in the literature review search and included if meeting the inclusion and exclusion criteria.

Eligibility criteria Before screening literature, inclusion and exclusion criteria were developed. Inclusion criteria consisted of people of child-bearing potential who had given birth to singleton pregnancies, people of child-bearing potential who had no chronic health conditions, people of child-bearing potential who had given birth vaginally, and people of child-bearing potential who had conceived through various methods of IVF. Exclusion criteria consisted of people of child-bearing potential who had multiple gestations, those with chronic health conditions such as endometriosis and irritable bowel syndrome, and those who had given birth via c-section.

Information sources A comprehensive literature review search was conducted between August 28th, 2024, and September 4th, 2024. Including PubMed, four databases in total were searched. EBSCOHost was used to search the MEDLINE, CINAHL Ultimate, and Academic Premier databases. No limits were placed on publication date to include a comprehensive review of the literature available. In addition, reference lists in selected peer-reviewed articles were searched.

Main outcome(s) Rate of post-partum hemorrhage between the intervention and comparator group
Rate of blood transfusions between the intervention and comparator group
Rate of premature rupture of membranes between the intervention and comparator group.

Quality assessment / Risk of bias analysis Studies that met the full inclusion criteria were assessed for risk of bias using the ROBIN-I tool for non-randomized studies of interventions. Studies were evaluated for high, medium, or low risk of bias across seven domains including confounding, selection of participants into the study, classification of interventions, deviations from intended interventions, missing data, measurement of outcomes, and selection of the reported result.

Strategy of data synthesis Data was extracted from each individual article and compiled into tables.

Subgroup analysis Not applicable.

Sensitivity analysis Not applicable.

Language restriction Limits included articles published in the English language.

Country(ies) involved United States.

Keywords in vitro fertilization, assisted conception, assisted reproductive technology, post-partum hemorrhage, adverse pregnancy outcomes.

Dissemination plans We will publish in a journal focused on pregnancy and childbirth as well as present at local research events accepting posters and/or oral presentations.

Contributions of each author

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