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**Autologous Regenerative Therapies in Personalized Reproductive
Medicine: The Role of PRP in Improving Ovarian Function and
Infertility Treatment**

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Abstract

Ovarian dysfunction, poor ovarian response (POR), and primary ovarian insufficiency (POI) remain major challenges in infertility care, with limited options for improving ovarian reserve and reproductive outcomes. Intraovarian autologous platelet-rich plasma (PRP) has been investigated as an experimental treatment, particularly in women with POR or POI. This review critically evaluated the available clinical evidence regarding its effectiveness.

A search of the Scopus database identified five clinical studies published between 2020 and 2024, including two randomized controlled trials (RCTs) in POR, two observational cohorts involving



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women with POI (n=311) and POR (n=510), and one retrospective study (n=71). Considerable heterogeneity existed in patient selection, PRP preparation, injection techniques, and outcome definitions.

The two 2024 RCTs did not consistently demonstrate improvements in key IVF, pregnancy, or live-birth outcomes. In contrast, non-randomized studies reported improvements in surrogate outcomes, including AFC, AMH, FSH, and oocyte or embryo yields in POR patients, without a significant increase in clinical pregnancy rates. In POI, one study reported 23 spontaneous pregnancies among 311 women, whereas another reported no pregnancies.

Overall, intraovarian autologous PRP remains experimental. Although observational studies suggest changes in ovarian reserve markers and selected IVF parameters, randomized evidence has not consistently demonstrated clinically meaningful reproductive benefits. Larger, standardized controlled studies are required before routine clinical use can be recommended.

Keywords: PRP , Autologous Regenerative , Ovarian dysfunction

Introduction

Objective: Ovarian dysfunction, poor ovarian response, and primary ovarian insufficiency remain major challenges in infertility care, with limited options to improve ovarian reserve and reproductive outcomes. Intraovarian autologous platelet rich plasma (PRP) has been investigated as an experimental treatment in selected infertile women, particularly those with poor ovarian response or primary ovarian insufficiency . Although some studies report changes in ovarian reserve markers and IVF outcomes after PRP administration, results remain inconsistent due to heterogeneity in study design, patient selection, PRP preparation, injection techniques, and outcome definitions . This review aimed to critically evaluate the clinical evidence regarding intraovarian autologous PRP for ovarian dysfunction and infertility treatment. **Methods:** A systematic search in the Scopus database identified five clinical studies (published 2020-2024) evaluating intraovarian autologous platelet-rich plasma (PRP) in women with poor ovarian response (POR), diminished ovarian function, or primary ovarian insufficiency (POI) . These included two randomized controlled trials for POR , two observational cohorts (POI: n=311; POR: n=510) , and one retrospective study (n=71) . Extracted data comprised study design, population, PRP protocols, ovarian reserve markers, IVF parameters, and reproductive outcomes .

Results: Five studies were included. Two 2024 RCTs in women with poor ovarian response (POR) found intraovarian PRP did not consistently improve key IVF, pregnancy, or live-birth outcomes

. Conversely, three non-randomized studies reported improved surrogate markers . Specifically, PRP improved AFC, AMH, FSH, and oocyte/embryo yields in POR patients , though clinical pregnancies didn't significantly increase . In premature ovarian insufficiency (POI), 23 spontaneous pregnancies occurred among 311 women , while another study reported zero pregnancies in this subgroup .

Conclusion: Current evidence suggests that intraovarian autologous PRP remains experimental in ovarian dysfunction and infertility treatment. While observational studies in women with POR or POI report changes in ovarian reserve markers and selected IVF outcomes after PRP , randomized controlled trials have not consistently shown clinically meaningful IVF benefits . Larger, standardized controlled studies are required before PRP can be recommended for routine use in reproductive medicine.

Tables and Figures

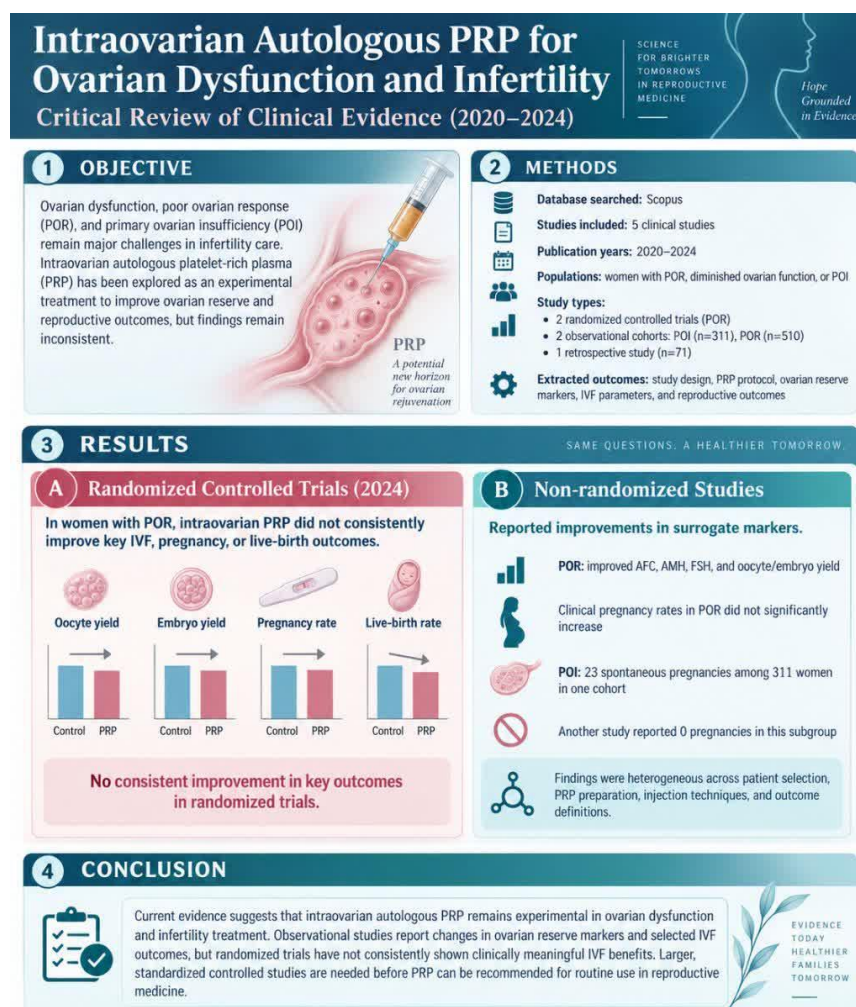


Figure 1. Graphical summary of the current clinical evidence on intraovarian autologous platelet-rich plasma (PRP) for ovarian dysfunction and infertility. Available studies show heterogeneous findings, with randomized controlled trials reporting no



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consistent improvement in key IVF, pregnancy, or live-birth outcomes, while non-randomized studies have reported changes in ovarian reserve markers and other surrogate outcomes. Overall, the evidence remains insufficient to support routine clinical use of intraovarian PRP.

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