OVARIAN PLATELET-RICH PLASMA IS ASSOCIATED WITH DE NOVO EUPLOID EMBRYO DEVELOPMENT AND SPONTANEOUS CONCEPTION IN PATIENTS WITH PRIOR POOR IVF OUTCOMES

Law J (1), Milad H (1), Contractor M (1), Collins G (2)
(1) Loyola University Medical Center, Maywood IL, USA
(2) Wisconsin Fertility Institute, Middleton, WI, USA

Introduction

- Poor ovarian response and diminished embryo competence remain major challenges in IVF, particularly in patients with repeated treatment failure.
- Platelet-rich plasma (PRP) has emerged as a potential regenerative therapy to improve ovarian function and reproductive outcomes.
- Ovarian PRP may enhance follicular environment, embryo development, and the likelihood of obtaining euploid embryos.

Objectives

To evaluate whether ovarian platelet-rich plasma (PRP) is associated with improvements in embryo quality, euploidy, and clinical outcomes in patients with prior poor IVF performance.

Methods

- Retrospective cohort study of 19 patients undergoing IVF cycles before and after ovarian PRP injections.
- Outcomes assessed included embryo development, blastocyst formation, preimplantation genetic testing for aneuploidy (PGT-A) results, and clinical outcomes.
- Each patient served as her own control.

Results

- Ovarian PRP may be associated with improved embryo competence and euploid embryo development in select patients with prior poor IVF outcomes.
- Table of patient demographics for those who elected for post-PRP PGT-A:

Age	BMI	AMH	Pre-PRP Euploid Embryos	Post-PRP Euploid Embryos
38	23	0.418	No PGT-A	n/a, spontaneous conception
33	41	7.785	0, all aneuploid embryos	4 euploid
37	26	3.69	0, 1 aneuploid embryo	3 euploid, 1 aneuploid
39	25	1.0	0, 1 aneuploid embryo	0
39	28	0.42	1 low mosaic trisomy 17	1 chaotic, 1 complex aneuploid embryo
42	27	2.56	1 euploid, 6 aneuploid	1 euploid, 1 high mosaic, 1 low mosaic, 7 aneuploid
39	25	0.999	1 high mosaic embryo	n/a, spontaneous conception

- Prior to PRP, most patients demonstrated poor embryo development, limited blastulation, and high rates of aneuploidy.
- Following PRP, there was an overall increase in high-quality blastocyst development.
- Two patients conceived spontaneously after PRP while preparing for future IVF cycles.
- Improvements in embryo quality were observed across age groups, although advanced maternal age remained associated with persistently high aneuploidy rates.

Conclusion

- Ovarian PRP may be associated with improved embryo development in select patients with prior poor IVF outcomes.
- The observation of spontaneous conception in patients preparing for IVF further suggests a potential biologic effect on ovarian function.
- These findings warrant further prospective investigation.

References

1. Ahmadi F, Gharaei R, Shirali E, Adabi K, Alishahi V, Tajaldini M. The impact of platelet-rich plasma (PRP) on ovarian function and oocyte quality: A comprehensive review. J Reprod Immunol. 2025 Dec;172:104649. doi: 10.1016/j.jri.2025.104649. Epub 2025 Sep 24. PMID: 41033010.
2. Seckin S, Ramadan H, Mouanness M, Kohansieh M, Merhi Z. Ovarian response to intraovarian platelet-rich plasma (PRP) administration: hypotheses and potential mechanisms of action. J Assist Reprod Genet. 2022 Jan;39(1):37-61. doi: 10.1007/s10815-021-02385-w. Epub 2022 Feb 17. PMID: 35175511; PMCID: PMC8866624.
3. Sharara FI, Lelea LL, Rahman S, Klebanoff JS, Moawad GN. A narrative review of platelet-rich plasma (PRP) in reproductive medicine. J Assist Reprod Genet. 2021 May;38(5):1003-1012. doi: 10.1007/s10815-021-02146-9. Epub 2021 Mar 15. PMID: 33723748; PMCID: PMC8190208.
4. Alageel AA. Unlocking ovarian rejuvenation with platelet-rich plasma: systematic review and proposed clinical framework for Controlled use in poor prognosis patients undergoing in vitro fertilisation. Arch Gynecol Obstet. 2026 Feb 27;313(1):112. doi: 10.1007/s00404-026-08338-x. PMID: 41760981; PMCID: PMC12948781.
5. Barrenetxea G, Celis R, Barrenetxea J, Martínez E, De Las Heras M, Gómez O, Aguirre O. Intraovarian platelet-rich plasma injection and IVF outcomes in patients with poor ovarian response: a double-blind randomized controlled trial. Hum Reprod. 2024 Apr 3;39(4):760-769. doi: 10.1093/humrep/deae038. PMID: 38423539.

Acknowledgement

The authors would like to thank the clinical, embryology, and nursing team at Wisconsin Fertility Institute for their contributions to patient care and cycle coordination.

We also acknowledge the patients whose clinical experiences made this retrospective analysis possible.