Hope vs Hype: In-Office Intra-Ovarian PRP Infusion Nearly Doubled The Number Of Blastocysts and Quadrupled the Number of Euploid Embryos Per Cycle in Low Prognosis IVF Patients

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BACKGROUND

- While there are studies exploring intra-ovarian PRP for ovarian rejuvenation in patients with diminished ovarian reserve, few describe its optimal approach and have focused on the higher cost and risk associated with operating room-based procedures, which include propofol anesthesia.
- **This study describes our in-office intraovarian PRP injection technique and its effect on IVF outcomes in patients with a prior history of a low euploid embryo yield in a prior freeze-all IVF cycles employing PGT-A**

METHODS

- A retrospective cohort time-series of **all patients who underwent in-office intraovarian PRP for ovarian rejuvenation following a failed IVF cycle** between **2022 and 2024** at one IVF center was performed.
- All PGT-A IVF cycles analyzed were **within 6 months** before or after the procedure.
- **Blood samples for autologous PRP were prepared using 20mL of venous blood placed in a centrifuge at 3500 RPM for 9 minutes, which was then activated with 1:10 calcium carbonate.**
- Patients premedicated with 10 mg of valium underwent vaginal preparation and placement of a 17-gauge 35mm needle inserted through a transvaginal ultrasound needle guide with bilateral puncture of the central ovarian stroma and **injection of 2-4mL of activated PRP.**
- The **first IVF cycle following PRP was compared to the IVF cycle immediately before the procedure** with paired t-tests. All cycles within six months of the procedure were compared with unpaired statistics.
- The **primary outcome** was the number and percentage of euploid blastocysts.
- **Secondary outcomes included** the number of blastocysts, the number and percentage of euploid and mosaic (E+M) embryos, and aneuploid embryos.
- Statistical analysis employed paired and non-paired t-tests, and Wilcoxon testing in R programming software.

RESULTS

Table 1: Effect of PRP on IVF Outcomes: Paired and Unpaired Testing

	Paired T-test			Unpaired T-test		
	Pre-PRP mean(SD)	**Post-PRP** mean(SD)	**P-value**	**Pre-PRP** mean(SD)	**Post-PRP**mean (SD)	**P-value**
Blastocysts	1.5(1.8)	2.8(2.8)	0.003*	1.5(1.7)	2.5(2.6)	0.06
Euploid Blastocysts	0.2(0.4)	0.8(1.1)	0.005*	0.2(0.4)	0.8(1.1)	0.002*
E+M Embryos	0.2(0.4)	1(1.3)	0.005*	0.3(0.4)	1(1.3)	0.002*
Aneuploid	1.3(1.8)	1.5(2)	0.3	1.2(1.7)	1.3(1.8)	0.7
Percentage of Euploid per Blastocyst	8.9% (23)	22% (28)	0.06	9.4% (25)	22% (30)	0.04*
Percentage of E+M Embryos per Blastocyst	11% (24)	27% (34)	0.05*	15%(30)	34%(41)	0.02*
Percentage of Aneuploids	51% (48)	46% (42)	0.62	51% (48)	39% (41)	0.21

Table 2. Effect of PRP on IVF Outcomes Stratified by AMH level, Paired Data

	AMH < 1 ng/mL			AMH ≥1 ng/mL		
	Pre-PRP	**Post-PRP**	**P-value**	**Pre-PRP**	**Post-PRP**	**P-value**
Age at PRP	39(3)	n/a	n/a	38(3)	n/a	n/a
Blastocysts	1.1(0.92)	1.1(1.2)	1	1.8(2.1)	3.5(3)	0.01*
Euploid Blastocysts	0.2(0.4)	0.1(0.3)	1	0.15(0.3)	1.2(1.2)	0.004*
Euploid and Mosaic Blastocysts	0.2(0.4)	0.2(0.4)	1	0.21(0.4)	1.4(1.5)	0.005*
Percentage of Euploids per Blastocyst	15% (34)	4% (11)	1	7% (17)	31% (31)	0.01*
Percentage of Euploid and Mosaics per Blastocysts	15% (34)	7.4% (14)	1	9.6% (19.5)	34% (34)	0.03*

- **30 subjects** met inclusion criteria.
- Mean **age** and initial **AMH** were **38.3±3.2** and **1.9±1.5** respectively.
- In **paired data**, in-office PRP was associated with **an increase in the blastocyst yield, euploid embryo yield,** and **E+M yield.**
- For **unpaired data**, the 39 cycles prior to and 38 cycles after PRP resulted in **increases in the number and percentage of euploid embryos** and the **number and percentage of E+M**.
- For **patients with an AMH ≥ 1**, the number of blastocysts increased 2-fold, the number of euploid embryos increased 8-fold, the percentage of euploid embryos quadrupled, and the number of E+M increased 7-fold.
- For **patients with an AMH < 1** there was no difference in yield following PRP.
- For **patients ≥ 40 years old (n=12)** the number of euploids increased from 0.08±0.3 to 0.17±0.4, however this did not reach significance (p=0.6).

CONCLUSION

- In-office intraovarian PRP injection is a well-tolerated procedure that resulted in an increase in euploid blastocysts when compared to a prior cycle.
- PRP should be considered in low-prognosis IVF patients with an AMH ≥ 1. PRP was of no benefit to patients with a low AMH.

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