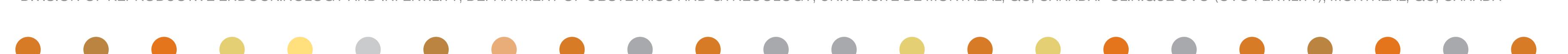


ROLE OF PERIFOLLICULAR DOPPLER PARAMETERS IN PREDICTING OOCYTE MATURATION AND PICK-UP RATE IN MODIFIED NATURAL IVF (mnIVF) CYCLES: A PROSPECTIVE STUDY

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OBJECTIVE

To assess whether Doppler-evaluated vascular status of the dominant follicle in mnIVF cycles correlates with the ovum pick-up (OPU) outcome.

DESIGN

Heathy patients younger than 38, with BMI <35, and having regular ovulatory cycles between 21 & 35 days, were prospectively recruited during their mnIVF cycles. Vascularization (VI), flow (FI), and vascularization flow (VFI) indices were measured using 3D-Power Doppler on the days of ovulation trigger and/or OPU. The primary outcome was classified as absent, immature, or mature metaphase II (MII) oocyte retrieved.

MATERIALS & METHODS

108 patients met the inclusion criteria. In order to limit inter-observer variability, all Doppler measurements were conducted by the same physician according to his availability, leading to 3 groups of patients: 29 having their Doppler measured only on the day of ovulation trigger (group T), 38 assessed only on the day of pick-up (group P), and 41 having measurements done on both days (group B).

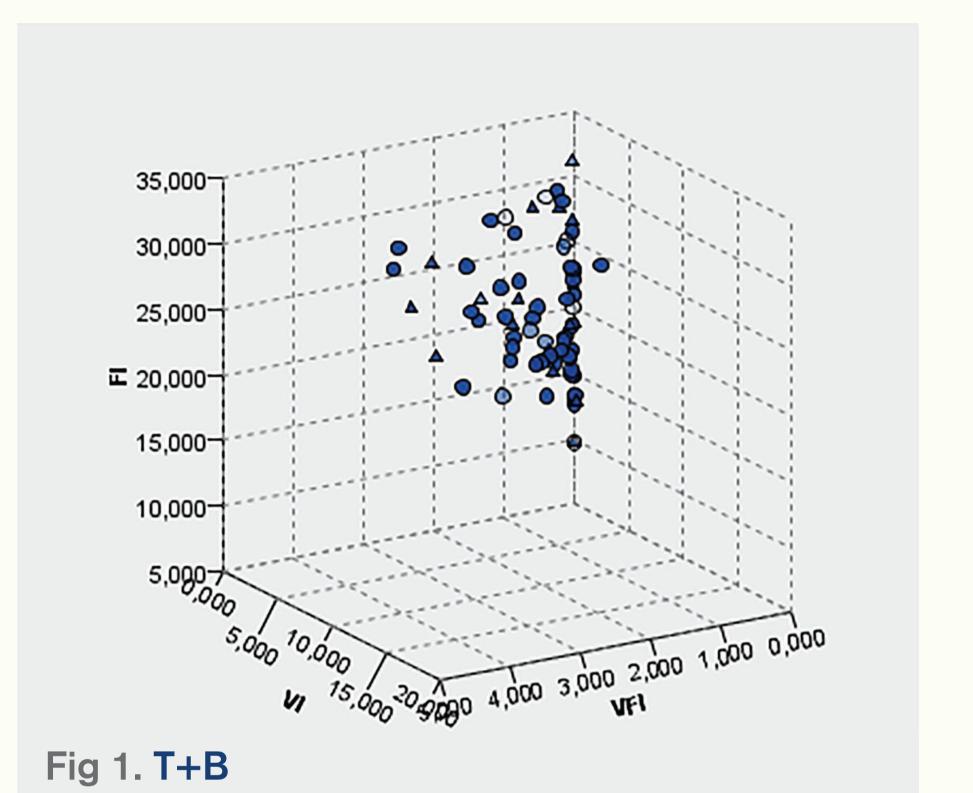
For group B, a comparison of the means between trigger & OPU days using t-test was done. Because significant difference was found, a separate analysis using Pearson correlation was done for T+B (n= 70), and P+B (n= 79) respectively.

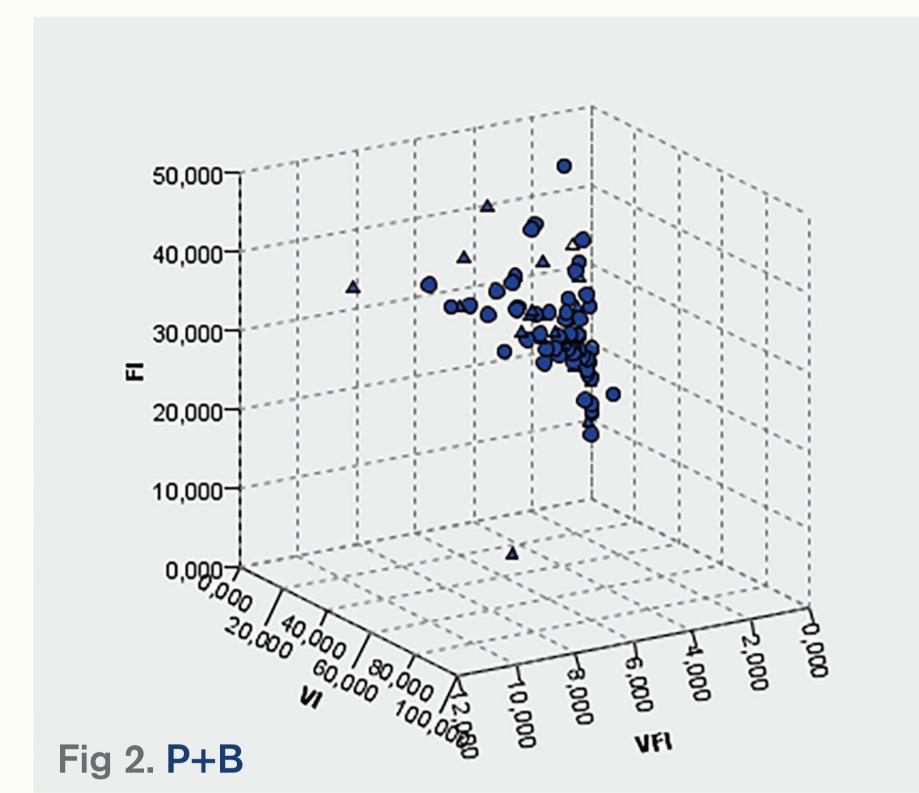
RESULTS

The study population was relatively young (mean age 32.7 years), with an acceptable ovarian reserve (AMH 1.48 ng/ml and 16 antral follicles on average), but a long history of infertility (~ 4.2 years). The pick-up rate was 91.8%, among which 90.1% were MII oocytes.

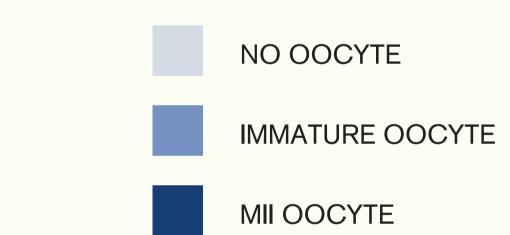
In group B, all three parameters significantly increased from trigger day to OPU day (VI: 4.84 vs. 6.80, p= 0.0165; FI: 22.53 vs. 25.37, p= 0.0138; VFI: 1.27 vs. 1.91, p= 0.0235).

Analysis of [T+B] showed that Doppler indices measured on the day of trigger do not correlate with OPU outcome (rVI: 0.142, p= 0.240; rFI: -0.074, p= 0.542; rVFI: 0.126, p= 0.299). Neither do parameters measured directly prior to OPU, when [P+B] was analyzed (rVI: 0.172, p= 0.130; rFI: -0.062, p= 0.585; rVFI: 0.177, p= 0.120).





Correlation between OPU outcome and Doppler parameters measured on the day of ovulation trigger (Fig. 1), and directly prior to egg retrieval (Fig. 2).



CONCLUSION

Since there is only one dominant follicle in mnIVF cycles, it would be beneficial to predict the OPU outcome to save the patient an invasive procedure when no MII oocyte is expected. Even though VI, FI, and VFI were not independently associated with pick-up and maturity rates, an algorithm combining the three parameters to reflect perifollicular blood flow can still be a promising non-invasive diagnostic tool.





