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

DESIGN
Healthy 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.

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).

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.