



Review

Placental Volume and Uterine Artery Doppler in Pregnancy Following In Vitro Fertilization: A Comprehensive Literature Review

Serena Resta, Gaia Scandella, Ilenia Mappa, Maria Elena Pietrolucci, Pavjola Maqina and Giuseppe Rizzo *

Università di Roma Tor Vergata, Department of Obstetrics and Gynecology, Fondazione Policlinico Tor Vergata, Viale Oxford 81 00133 Roma, Italy

* Correspondence: giuseppe.rizzo@uniroma2.it

Citation: Resta, S.; Scandella, G.; Mappa, I.; Pietrolucci, M.E.; Maqina, P.; Rizzo, G. Placental Volume and Uterine Artery Doppler in Pregnancy Following In Vitro Fertilization: A Comprehensive Literature Review. *J. Clin. Med.* **2022**, *11*, 5793.

<https://doi.org/10.3390/jcm11195793>

Academic Editors: Aldo E. Calogero and Claudio Manna

Received: 16 September 2022

Accepted: 27 September 2022

Published: 29 September 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2022 by the authors.

Licensee MDPI, Basel, Switzerland.

This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Supplementary Material: Characteristics of the studied considered

| | | | | | UtA-PI | | | PV | | | uPVV | | |
|------------------------|-------------|--|----------------|---------------------------|---|--------------------------------|-------------|--|-------------|-------------------------------------|---------------|-----|---------------|
| | | | | | IVF | | | IVF | | | IVF | | |
| Study | Country | Study Design | N of patients | ART technique distinction | Fresh embryo | FET | Control | Fresh embryo | FET | Control | Fresh embryo | FET | Control |
| Rifouna et al. 2014 | Netherlands | Retrospective cohort study | 154 (70 IVF) | Y Fresh/FET embryos | N/A | | | 42.7, SD 15.9 | | 41.2, SD 13.9 | 27.6, SD 16.9 | | 24.8, SD 19.9 |
| Rizzo et al. 2016 | Italy | Prospective study | 914(416 IVF) | Y autologus/donor | Autologus: 1.1 (IQR 0.7-1.5) Donor: 1 (IQR 0.8-1.4) ⁺ | 1.00 (IQR0.7-1.4) ⁺ | | Autologous: 0.80 (IQR, 0.50–1.10) donor: 0.63 (IQR, 0.40 – 0.80) ⁺ | | 1.04 (IQR), 0.81–1.22) ⁺ | N/A | | |
| Sundheimer et al. 2018 | USA | Retrospective cohort study | 3613 (427 IVF) | N IVF/ non-IVF techniques | N/A | | | IVF+nIVF: 56.6 ± 32.9 | | 55.2 ± 32.6 | N/A | | |
| Choux et al. 2019 | France | Retrospective single-centre case-control study | 252(84 IVF) | Y Fresh/FET embryos | 1.86 ± 0.64 ° | 1.26 ± 0.44° | 1.52± 0.59* | 4.40 ± 0.283 | 4.38 ± 0.37 | 4.52 ± 0.39 | N/A | | |
| Cavoretto et al. 2020 | Italy | Prospective longitudinal study | 367 IVF | Y Fresh/FET embryos | 1.00 ± 0.29 ** | 0.86 ± 0.28 ** | N/A | N/A | | | N/A | | |

| | | | | | | | | | | | | | |
|-----------------------|-------------|--------------------------|--------------|------------------------|--------------------------------|--------------------------------|-----------|-------------------------------|-------------------------------|-----------|--------------------------------|-------------------------------|-----------|
| | | | | | | | | | | | | | |
| Van Duijn et al. 2021 | Netherlands | Prospective cohort study | 214 (88 IVF) | Y Fresh/FET embryos | β -0.148 (-0.304, 0.009) | β -0.112 (-0.305, 0.080) | Reference | β 0.003 (-0.127, 0.134) | β 0.002 (-0.160, 0.163) | Reference | β -0.052 (-0.207, 0.103) | β 0.071 (-0.121, 0.263) | Reference |

[°]p <0.05, *p <0.001, FET: frozen-thawed embryo transfer, + MoM.