

**Arterial Stiffness throughout Pregnancy in Women Who Conceive Via In Vitro Fertilization**

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**Objectives:** In vitro fertilization (IVF) is an increasingly common method of conception among women. Studies have reported a higher risk in IVF pregnancies for certain cardiovascular-related outcomes, such as pregnancy-induced hypertension. The effect of IVF on arterial structure as a potential underlying mechanism for this increased risk has yet to be explored. Applanation tonometry allows the non-invasive assessment of arterial stiffness, a composite predictor of cardiovascular risk. The objective of this study was to explore the association between IVF and arterial hemodynamic and stiffness parameters in pregnancy.

**Methods:** In this prospective longitudinal study, women with singleton pregnancies were recruited from high-risk obstetrical clinics. Arterial stiffness was measured using applanation tonometry (Sphygmocor; AtCor, Australia) and compared between women who conceived via IVF and those who conceived spontaneously. Arterial hemodynamics and stiffness were assessed, starting in the first trimester, every four weeks throughout pregnancy and again at six weeks post-partum.

**Results:** Of the 69 participants recruited (median maternal age = 37 years [IQR = 35-39]), 23 conceived by IVF. Analyses adjusted for both maternal age and body mass index showed there were no significant differences in peripheral and central blood pressures of women who conceived via IVF as compared to those who conceived spontaneously throughout pregnancy or at six weeks post-partum. In addition, carotid-femoral pulse wave velocity, carotid-radial pulse wave velocity, and augmentation index at a heart rate of 75 beats per minute did not differ significantly between these two populations (all p-values > 0.05).

**Conclusion:** Conception via IVF did not have significant effects on the hemodynamic parameters, nor on central, peripheral, and systemic arterial stiffness throughout pregnancy of women in this population. Nor were differences found six weeks post-partum.