Advanced Cardiac Interventions During Pregnancy: A Personal Perspective

Angela HEM Maas

Department of Cardiology, Radboud University Medical Center, Nijmegen, the Netherlands

Disclosures: The author has no conflicts of interest to declare.
Received: 7 April 2020 **Accepted:** 11 May 2020 **Citation:** *Interventional Cardiology* 2021;16:e25. **DOI:** https://doi.org/10.15420/icr.2020.12
Correspondence: Angela HEM Maas, Department of Cardiology, Radboud University Medical Center, PO Box 9101, Route 616, 6500 HB Nijmegen, the Netherlands. E: angela.maas@radboudumc.nl

In one of my worst ever night shifts, I witnessed a 32-year-old pregnant woman dying while her first toddler was sitting on her bed. She died of heart failure due to a spontaneous coronary artery dissection (pSCAD) with a retrograde dissection of the whole left coronary artery. Another woman I will never forget was a mother of seven with a severe peripartum cardiomyopathy during her eighth pregnancy. She barely survived, and we managed to convince the religious couple to undergo sterilisation simultaneously with her caesarean section. Distressing experiences such as these require the courage of obstetricians alongside good collaboration with (interventional) cardiologists and other medical specialists.

Severe cardiac problems during pregnancy and after delivery account for the majority of pregnancy-related maternal deaths. Recent findings of a UK cohort of 79 pregnant women with pre-existing ischaemic heart disease (IHD), reported a rate of adverse cardiac events of 6.6%, without any maternal deaths.[1] However, the risk of adverse obstetric and neonatal events was greater, with rates of pre-eclampsia, preterm delivery and small for gestational age of 14%, 25% and 25%, respectively. Foetal risk may therefore be even higher than maternal risk in women with known IHD.

In this special focus issue, Khaing et al. describe in their review that the risk of acute coronary syndrome (ACS) increases by three- to fourfold during pregnancy, especially in women aged >40 years.[2] Although there is no evidence that *in vitro* fertilisation affects this risk, it is important to note that >90% of ACS in pregnancy occurs in women without prior IHD and that a coronary angiogram is done in fewer than half of all cases of ACS. In young women it is more important than ever to correctly assess the underlying pathophysiology to be able to provide the most appropriate treatment advice. As many young women with ACS in pregnancy present with MI with non-obstructed coronary arteries, of which a quarter are because of pSCAD, a percutaneous coronary intervention (PCI) following angiography is often not needed or indicated.[3] However, it is important to note that pregnancy itself is not a contraindication for PCI, and as a life-saving procedure it should be performed when necessary.[4]

Prior unknown rheumatic valve disease may become apparent for the first time during pregnancy. For instance, mitral stenosis can cause AF with serious haemodynamic changes that need intervention during gestation. Fraccaro et al. describe interventional options during pregnancy in mitral stenosis and other serious valvular diseases.[5] Although in the ideal world pre-pregnancy counselling and therapy is advised, an acute intervention during pregnancy may be needed. This certainly may be the case for immigrant women and refugees who did not have the opportunity to be screened earlier. The fast-growing experience of the interventional cardiologist in percutaneous valve procedures is of great advantage for successful and safe interventions during pregnancy, which are usually preferred over surgery.

Thinking back to my own experiences with pregnant women with severe cardiac problems, it is important to realise that if you save a mother, you also save the whole family. Furthermore, in Western countries we have a moral obligation to share our growing experience in modern invasive cardiology techniques with our colleagues in less well-equipped countries to help save women's lives. ❑

1. Cauldwell M, Steer PJ, von Klemperer K, et al. Maternal and neonatal outcomes in women with history of coronary artery disease. *Heart* 2020;106:380–6. https://doi.org/10.1136/heartjnl-2019-315325; PMID: 31533991.
2. Khaing PH, Buchanan GL, Kunadian V. Diagnostic angiograms and percutaneous coronary interventions in pregnancy. *Interv Cardiol* 2020;15:e04. https://doi.org/10.15420/icr.2020.02; PMID: 32536975.
3. Adlam D, Alfonso F, Maas A, Vrints C. European Society of Cardiology, acute cardiovascular care association, SCAD study group: a position paper on spontaneous coronary artery dissection. *Eur Heart J* 2018;39:3353–68. https://doi.org/10.1093/eurheartj/ehy080; PMID: 29481627.
4. Regitz-Zagrosek V, Roos-Hesselink JW, Bauersachs J, et al. 2018 ESC guidelines for the management of cardiovascular diseases during pregnancy. *Eur Heart J* 2018;39:3165–241. https://doi.org/10.1093/eurheartj/ehy340; PMID: 30165544.
5. Fraccaro C, Tence N, Masiero G, Karam N. Management of valvular disease during pregnancy: the evolving role of percutaneous treatment. *Interv Cardiol* 2020;15:10. https://doi.org/10.15420/icr.2020.06; PMID: 32905129.