Aortic Dissection In Pregnancy: Why Is The Mortality So High: Why Is Its Diagnosis Delayed: How Should Its Treatment Differ From Non-Pregnant Patients

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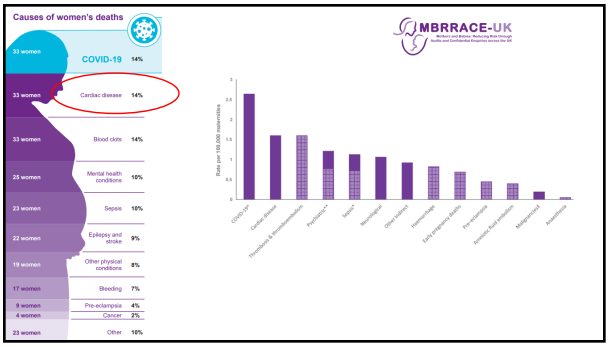
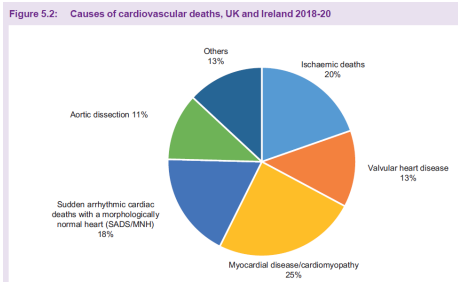
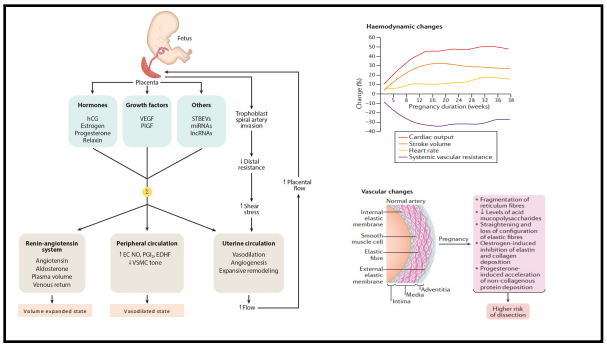
No disclosures





Aortic dissection in pregnancy

- Low prevalence: IRAD – risk of acute aortic dissection during pregnancy 0.4-0.5/100,000 pregnancies
- 50% of aortic dissections in women younger than 40 years occur in the setting of pregnancy
- Risk increases with gestational age
- 60% Type A 40% Type B
- Prehospital mortality 53%
- Case fatality rate 60%



REVIEWS

Aortic Dissection in Pregnancy: Analysis of Risk Factors and Outcome

Franz F. Immer, MD, Anne G. Bansi, MD, Alexsandra S. Immer-Bansi, MD, Jane McDougall, MD, Kenton J. Zehr, MD, Hartzell V. Schaff, MD, and Thierry P. Carrel, MD

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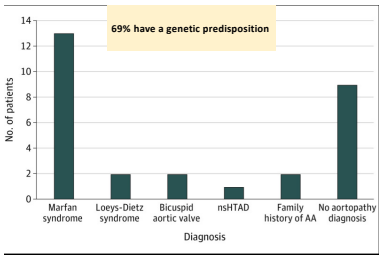
Aortic dissection during pregnancy is a life-threatening event. Recent studies have revealed similar histologic changes in the wall of the ascending aorta in patients with bicuspid aortic valve disease (BAVD). Based on a review of the literature, including the experience from two institutions, we looked at the patient's characteristics in patients with thoracic aortic dissection during pregnancy. We found that aortic root enlargement (> 4cm) or an increase of aortic root size during pregnancy in patients with BAVD, and Marfan syndrome is associated with a considerable risk for the occurrence of Type A dissection.

(Ann Thorac Surg 2003;76:309–14)

> **50%** of pregnant patients with aortic dissection have **Marfan syndrome**

Aortopathy Diagnosis in Women With Pregnancy-Related Aortic Dissection



Braverman AC *et al.* Clinical Features and Outcomes of Pregnancy-Related Acute Aortic Dissection. JAMA Cardiol. 2021

Aortic Size Thresholds

Aortopathy	Aortic root size
Marfans	> 45mm
	>40-45mm with other risk factors
Loeys-Dietz	> 40mm (if TGFBR1 and 2, SMAD3 variant)
	> 45mm (if TGFB2,3)
ED IV	> 50mm
Turners syndrome	>25mm/m^2
Bicuspid AV	> 50mm

A woman collapsed and died from an aortic dissection at term. A thorough review identified that at booking she had described that her sister had had a heart condition but that she herself had been tested and cleared. Her sister had had an aortic dissection but the woman had only had a single echocardiogram for screening.

A lack of adequate investigation for chest pain can be identified in 71% of maternal deaths caused by aortic dissection

e emergency
her back and
She felt worse
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tions, ECG, bloods (including troponin and blood gases) and was reviewed by an emergency department consultant who felt the pain was not cardiac related. She did not have a chest x-ray. The emergency department consultant attributed the pain to early labour and recommended discharge. A second consultant agreed. A midwife did not feel she was in labour. Intravenous paracetamol and Gaviscon did not help her pain but it was partly relieved by morphine. A fetal tachycardia occurred and her pain was then thought to be related to an abruption. She had an induced birth and the pain settled and she was discharged the next day. The following day she collapsed and could not be resuscitated despite thrombolysis. Her aortic dissection was diagnosed at post-mortem.

Diagnosis of AD in pregnancy

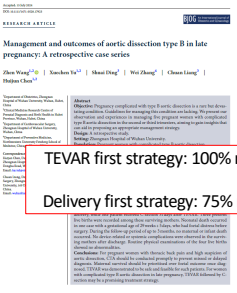
Mean time to diagnosis in IRAD = 4.3 hours Mean time to diagnosis in pregnancy =18.5 hours

	1	2	3	4	5
Initial Ix	TTE	VQ scan	TTE (positive for aortic dissection)	TTE	VQ scan
Definitive Ix	TTE	TTE	CT chest contrast	TTE	TTE
Time from ED presentation to diagnosis	15.5 h	5.5 h	150.5 h	18.5 h	20.5 h
Time from diagnosis to arrival in OT	1.5 h	1.5 h	54 h	0.5 h	2 h

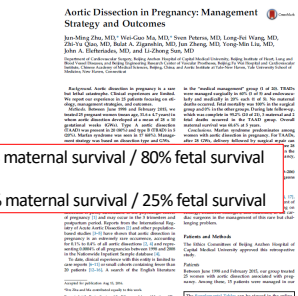
CT chest contrast, computed tomography of the chest with IV contrast; h, hours; OT, operating theatre; TTE, transthoracic echocardiogram; VQ scan, ventilation/perfusion scan.

Low index suspicion
Atypical presentation
Investigative challenges

Ch'ng SL, Cochrane AD, Goldstein J, Smith JA. Stanford type a aortic dissection in pregnancy: a diagnostic and management challenge. Heart Lung Circ. 2013 Jan;22(1):12-8. doi: 10.1016/j.hlc.2012.08.005. Epub 2012 Oct 16. PMID: 23084107.



Management and outcomes of aortic dissection type B in late pregnancy: A retrospective case series



Aortic Dissection in Pregnancy: Management Strategy and Outcomes

TEVAR first strategy: 100% maternal survival / 80% fetal survival

Delivery first strategy: 75% maternal survival / 25% fetal survival

Conclusions

- Cardiovascular adaptations in pregnancy can trigger AD in 3rd trimester in the vulnerable aorta
- Delayed diagnosis costs lives - improve symptom recognition & diagnostic scanning
- Uncomplicated TBD: BMT with earlier delivery
- Complicated TBD: TEVAR 1st followed by CS

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