

How low can (your heart) go?

Management of very low ejection fraction in pregnancy

Colete Ciresi MD, Annastacia Woytash DO, Kaitlyn Brennan DO MPH

Introduction

Multidisciplinary management required for full optimization of parturients with heart failure

- Physiologic changes of pregnancy
 - Cardiogenic shock
 - Arrhythmia
- Management principles:

Prevent decompensation - reducing afterload, inotropic medications , AICD placement prior to pregnancy

Maintain sinus rhythm

Transthoracic echocardiography (TTE) is a valuable tool and should be done at regular intervals during pregnancy

Learning Objective:
What is the
management strategy
of heart failure and
ventricular arrhythmias
in pregnancy?

Case Summary

36-year-old G1P0 presented for IOL at 34.4 gestation due to decompensated heart failure

PMH: combined systolic and **diastolic heart failure (LVEF 15-20%, grade II diastolic dysfunction)**, HTN, tobacco use, AICD with history of inappropriate defibrillation

Anesthetic Management:

VT therapy on her AICD was disabled, preinduction arterial line placed, & epidural analgesia initiated early in her labor course

During epidural placement and throughout labor telemetry revealed NSVT

Due to NRFHT urgent cesarean delivery performed under neuraxial anesthesia

Continuous telemetry and invasive blood pressure (BP) monitoring continued for 48 hours PP

Discharged home on PPD 5 in good condition with HF medications

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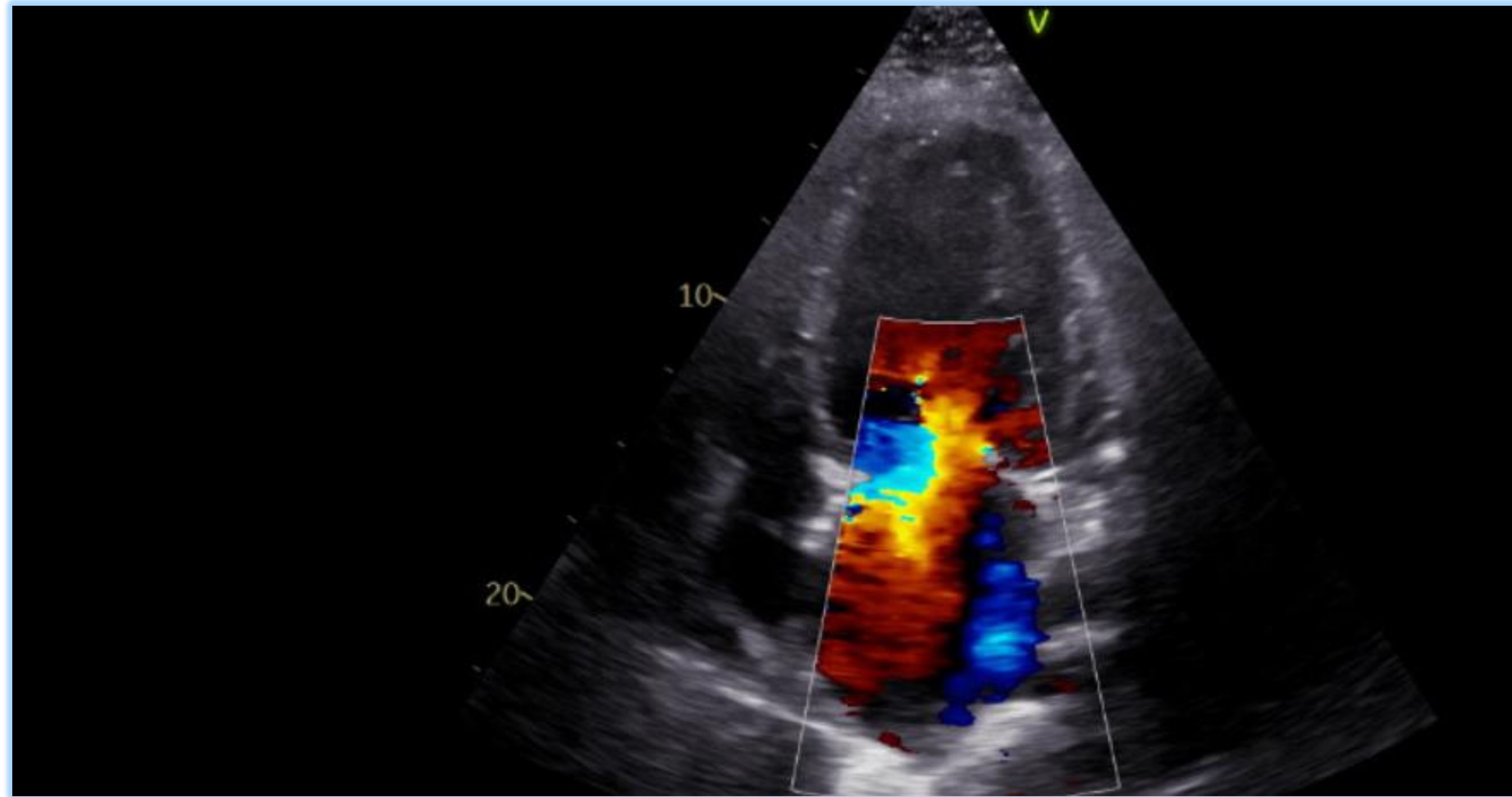


Figure A: Four Chamber View: The left ventricle is severely dilated in size. (LVIDd 7.77 cm) Left ventricular ejection fraction is severely reduced. The visually estimated ejection fraction is 20-30%. Endocardial global longitudinal systolic strain appears abnormal. Grade 2 diastolic dysfunction (pseudonormal filling pattern) appears present. Left sided filling pressure appears elevated. Mitral regurgitation is present.

Transthoracic echocardiography (TTE) is a valuable tool and should be done at regular intervals during pregnancy.¹

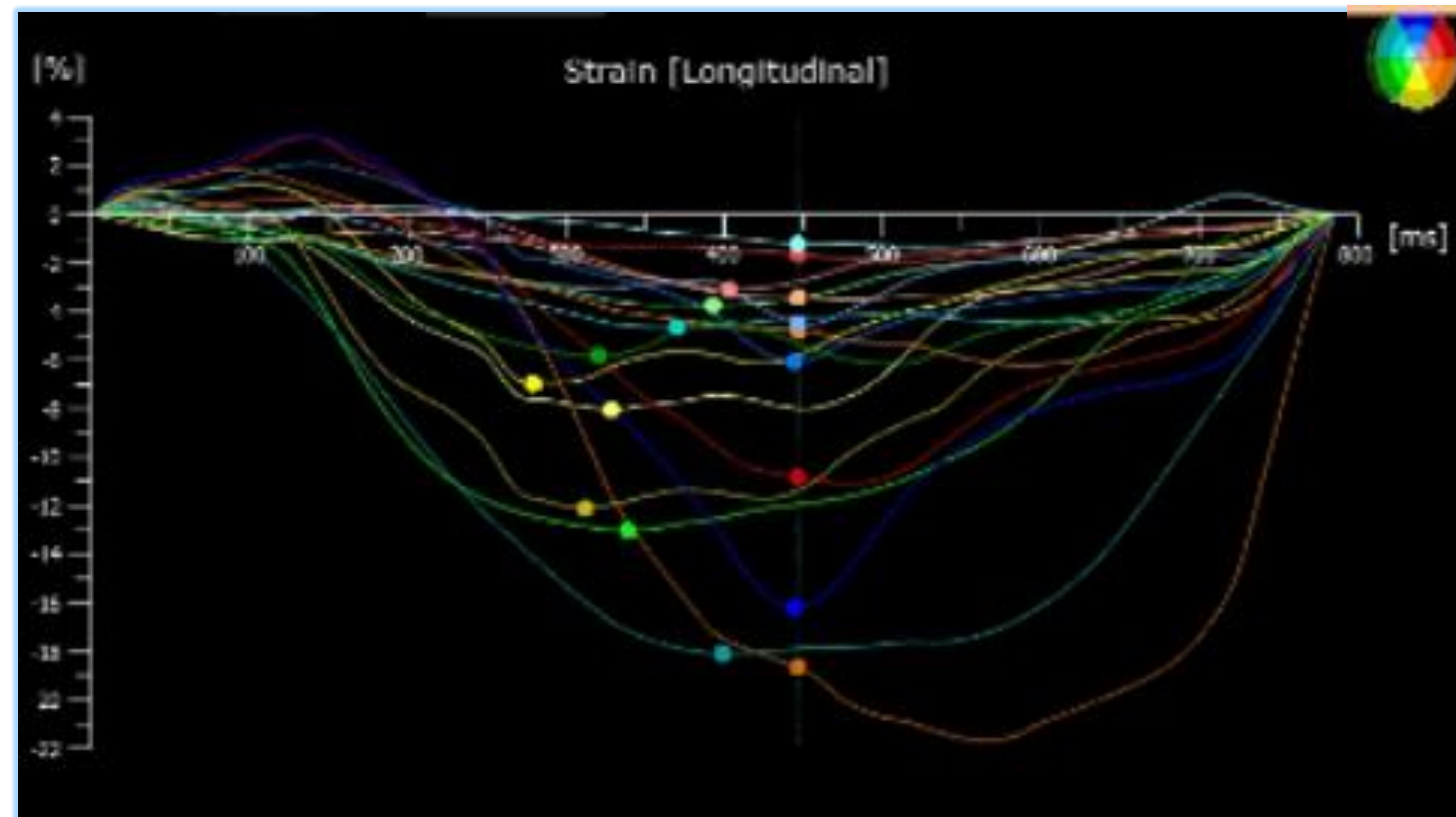


Figure B: Longitudinal Strain Curve depicting the myocardial segments of the left ventricle that are the most hypokinetic during the cardiac cycle.

Learning Objective:
What is the role of POCUS in peripartum fluid management?

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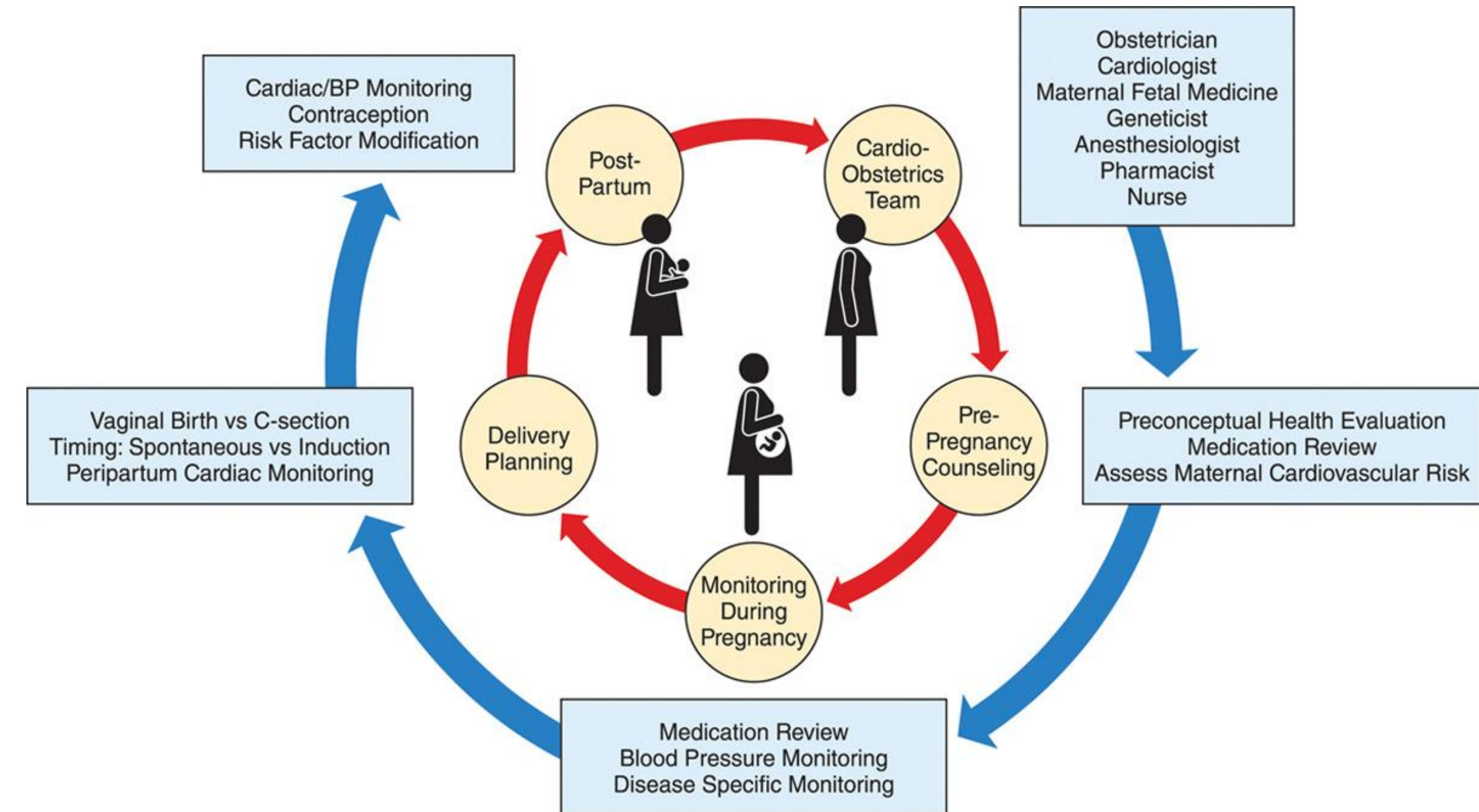
Discussion

This patient presented in a decompensated state with markedly decreased LVEF, making her **mWHO class IV** and at high risk of an adverse cardiac event.

Key management strategies for this population includes:

- optimize volume status prior to induction
- avoid excess fluid administration
- invasive BP monitoring is helpful
- neuraxial labor analgesia to minimize hemodynamic changes

These patients are at very high risk of decompensation if an emergent delivery is needed. Their risk continues in the immediate postpartum period, and they should recover in the hospital for at least 72 hours PP. It is imperative for the obstetric anesthesiologist to know the exact settings and antiachyarrhythmia therapies if an **AICD** is present.



Learning Objective:
How do we stratify maternal cardiovascular risk?

References

- 1 PMID 31641978
- 2 PMID 34904149
- 3 PMID 33919684
- 4 PMID 32362133