

Peripartum Cardiomyopathy Increases the Risk of Venous Thromboembolism and Coagulopathy: A Complex Physiology of Hemostatic Morbidity

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Background and Hypothesis

- Peripartum cardiomyopathy (PPCM) is an idiopathic cardiomyopathy characterized by left ventricular systolic dysfunction occurring in late pregnancy or the early postpartum period
- PPCM is associated with hemodynamic instability, endothelial dysfunction, and systemic inflammation, all of which contribute to a prothrombotic state
- Pregnancy itself is a physiologically hypercoagulable condition, complicating the distinction between baseline obstetric risk and PPCM-specific pathology
- Patients with PPCM may therefore be at increased risk for both thromboembolic complications (e.g., VTE) and coagulopathy-related abnormalities
- However, the relationship between hypercoagulability and hemorrhagic outcomes, particularly postpartum hemorrhage (PPH), remains poorly characterized at a population level

Objective:

To evaluate **hemostatic and cardiopulmonary outcomes** in patients with PPCM compared to the general pregnant population

Hypothesis:

PPCM is associated with **increased thromboembolic and cardiopulmonary complications**, without a corresponding increase in hemorrhagic outcomes

Study Design and Methods

Study Design and Methods

Retrospective cohort study using the **TriNetX Global Collaborative Network**

Population: Women diagnosed with PPCM

Comparison: PPCM vs general pregnancy population

Primary outcomes:

Venous thromboembolism (VTE)

Coagulopathy

Postpartum hemorrhage (PPH)

Secondary outcomes:

Heart failure

ICU admission

Arrhythmias

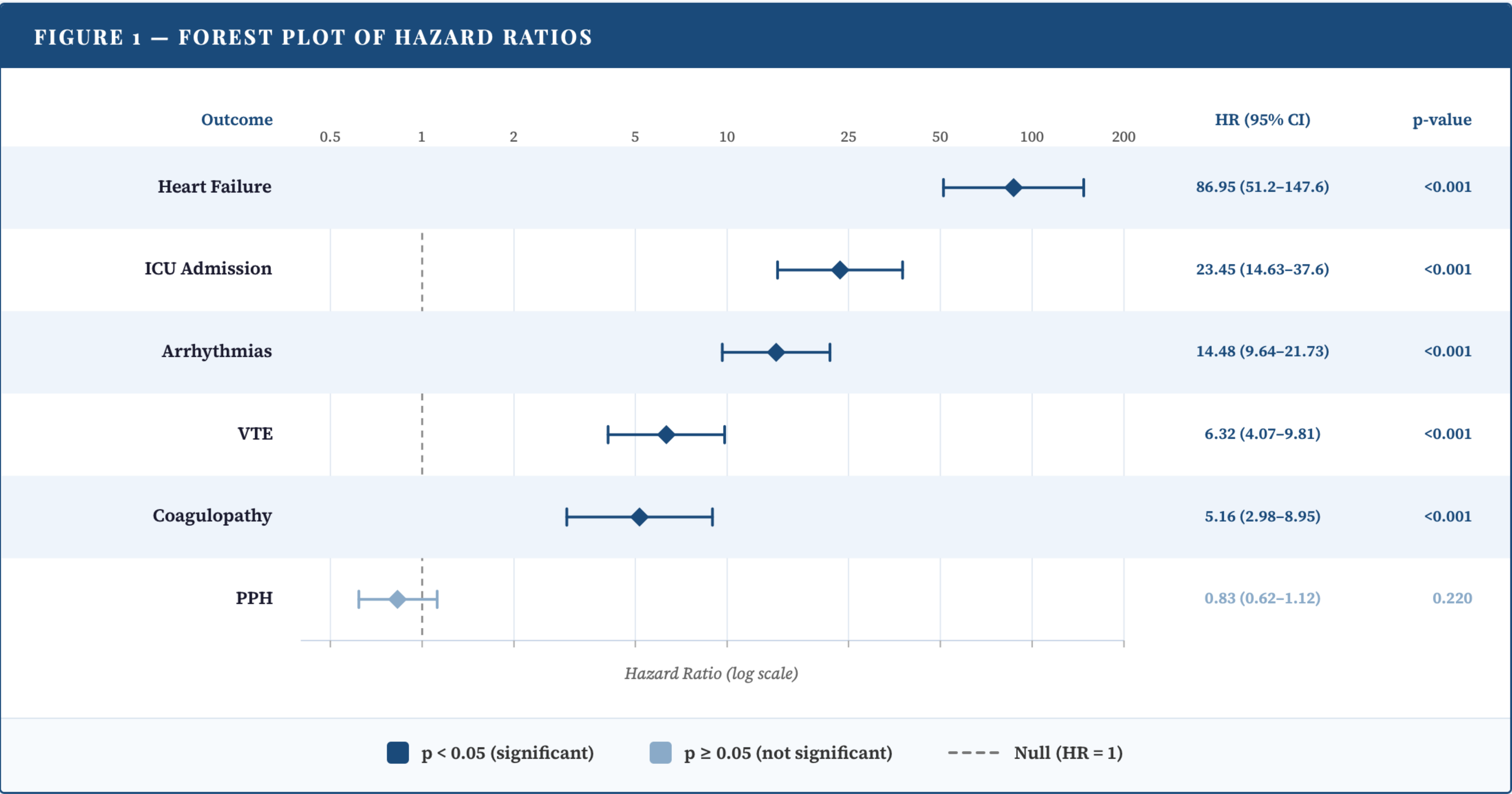
Statistical analysis:

Hazard ratios (HR) with 95% confidence intervals

Kaplan–Meier survival analysis

Results

TABLE 1 — HAZARD RATIOS & STATISTICAL SIGNIFICANCE			
OUTCOME	HAZARD RATIO (HR)		P-VALUE
Heart Failure	86.950	★ sig	<0.001
ICU Admission	23.450	★ sig	<0.001
Arrhythmias	14.480	★ sig	<0.001
Venous Thromboembolism (VTE)	6.320	★ sig	<0.001
Coagulopathy	5.160	★ sig	<0.001
Postpartum Hemorrhage (PPH)	0.830	ns	0.2200



Conclusion and Discussion

- • Patients with PPCM had significantly higher thromboembolic and cardiopulmonary morbidity
 - ↑ venous thromboembolism (VTE)
 - ↑ coagulopathy
 - ↑ heart failure
 - ↑ ICU admission
 - ↑ arrhythmias
- • No statistically significant increase in postpartum hemorrhage (PPH) compared to general pregnancy population
- • Clinical interpretation: PPCM patients likely represent a profoundly hypercoagulable and cardiopulmonary unstable population; however, the absence of increased PPH suggests that this does not translate into a parallel increase in hemorrhagic risk
- • Implications: Supports the need for enhanced monitoring and risk stratification for thromboembolic complications, with less emphasis on hemorrhagic risk in PPCM patients
- • Limitations: retrospective design, reliance on ICD coding, limited granularity on anticoagulation use and disease severity
- • Future directions
 - Larger multicenter studies to improve statistical power
 - Prospective studies evaluating optimal anticoagulation strategies and timing in PPCM
 - Development of clinical risk stratification tools incorporating cardiac and hemostatic parameters