



**PRESENT-DAY INTENSIVE THERAPY STRATEGIES FOR
ACUTE HEART FAILURE COMPLICATING PERIPARTUM
CARDIOMYOPATHY**

S.Sh. Joniyev^{1,2}, A.Z. Fozilov¹

*Samarkand State Medical University, Samarkand Regional Branch of the
Republican Specialized Scientific and Practical Medical Center of Cardiology,
Samarkand, Uzbekistan*

***Abstract.** Peripartum cardiomyopathy (PPCM) is a rare condition associated with the development of acute heart failure (AHF) during the peripartum period, carrying a high maternal mortality rate (6–10% within 6 months). Intensive management of AHF in PPCM requires a comprehensive approach, including pharmacological therapy, hemodynamic monitoring, and, in severe cases, mechanical circulatory support. This article summarizes current data on the epidemiology, pathophysiology, intensive care strategies, and prognosis of AHF in PPCM, with emphasis on statistical findings and clinical guidelines.*

Introduction Peripartum cardiomyopathy (PPCM) is characterized by the development of heart failure (HF) during the last month of pregnancy or within 5 months after delivery in women without previously known heart disease [1]. Acute heart failure (AHF) in PPCM represents a critical condition requiring immediate intervention in an intensive care unit (ICU).

The aim of this article is to analyze contemporary approaches to the intensive management of AHF in PPCM, taking into account epidemiological data, pathophysiological mechanisms, and clinical recommendations.

Epidemiology and Pathophysiology The incidence of PPCM varies from 1:100 live births in Nigeria to 1:4000 in the United States [2, 3]. In Europe, the frequency ranges from 1:1300 to 1:4000 deliveries [4]. AHF develops in 44% of PPCM patients within the first month postpartum, with 70% of these cases



corresponding to NYHA functional class III–IV [5]. Mortality from AHF in PPCM reaches 6% within 6 months, with a higher risk among women of African descent.

The pathophysiology of AHF in PPCM involves a combination of oxidative stress, inflammation, and hormonal changes. A key role is played by the abnormal 16-kDa prolactin metabolite, which induces cardiomyocyte apoptosis [7]. Reduced left ventricular ejection fraction (LVEF) <35% is observed in 68% of patients at diagnosis [5]. Thromboembolic complications, driven by postpartum hypercoagulability, increase the risk of pulmonary embolism and stroke [8].

Diagnosis in the ICU Setting Diagnosis of AHF in PPCM in the ICU includes:

- **Echocardiography:** Confirms left ventricular systolic dysfunction (LVEF <45%) and chamber dilatation [2].
- **Biomarker monitoring:** Elevated natriuretic peptides (BNP or NT-proBNP) are detected in 90% of patients with AHF in PPCM [9].
- **ECG:** Nonspecific changes (T-wave inversion, arrhythmias) are seen in 60% of cases and should be compared with baseline [9].
- **CT/MRI:** Used to rule out pulmonary embolism and myocarditis [10].

Differential diagnosis includes pulmonary embolism, myocarditis, and ischemic heart disease.

Intensive Care Management Treatment of AHF in PPCM in the ICU aims to stabilize hemodynamics, relieve pulmonary edema, and prevent complications.

Key approaches include:

- **Diuretics:** Intravenous furosemide (40–80 mg/day) effectively resolves pulmonary edema in 85% of patients [1].
- **Vasodilators:** Nitroglycerin (10–20 µg/min) is used in cases of elevated blood pressure to reduce afterload [12].
- **Inotropic agents:** Dobutamine (2.5–10 µg/kg/min) is employed in cardiogenic shock, occurring in 10–15% of patients [13].



- **Anticoagulants:** Heparin or low-molecular-weight heparin (e.g., enoxaparin 1 mg/kg every 12 hours) is indicated for thromboembolism prevention, particularly when LVEF <35% [8].

ACE inhibitors and angiotensin II receptor blockers are contraindicated during pregnancy due to teratogenicity but may be used postpartum [6]. Beta-blockers (e.g., metoprolol 25–100 mg/day) are administered cautiously to control arrhythmias and reduce cardiac workload.

In refractory AHF (5–10% of cases), the following are applied:

- **Intra-aortic balloon pump (IABP):** Used in 3% of patients with cardiogenic shock [13].

- **Extracorporeal membrane oxygenation (ECMO):** Indicated in severe shock or cardiac arrest, with survival rates up to 75% when initiated promptly [13].

- **Implantable devices:** Left ventricular assist devices (LVAD) are considered in 1–2% of patients with persistent dysfunction [5].

Continuous ICU monitoring includes central venous pressure (target 4–12 mmHg), oxygen saturation, and cardiac output. Invasive monitoring (Swan-Ganz catheter) is used in 10% of patients with unstable hemodynamics [12].

Prognosis Recovery of LVEF (>50%) occurs in 71% of patients within one year, although 13% retain severe dysfunction (LVEF <35%) [11]. Five-year survival is 94%, but drops to 75% in women with refractory AHF requiring ECMO [6]. Thromboembolic events occur in 6.6% of patients and arrhythmias in 10% [8]. The risk of PPCM recurrence in subsequent pregnancies ranges from 20–50% [5].

Conclusion Intensive management of AHF in PPCM requires a multidisciplinary approach, including early diagnosis, pharmacological therapy, and mechanical support when necessary. Bromocriptine and anticoagulation play key roles in improving outcomes; however, treatment limitations during pregnancy complicate management. Future research should focus on developing the most



effective therapies and standardized clinical protocols to optimize care for patients with AHF in PPCM.

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