UDK. 616.12-008.46. 616-08-039.35

OPTIMIZATION OF INTENSIVE CARE IN CRITICAL CONDITIONS IN PATIENTS WITH PERIPARTUM CARDIOMYOPATHY

Obloberdiyev Muhammad
6th-year student, Group 618, Pediatric Faculty
Samarkand State Medical University
Scientific supervisor: ***Joniev S.Sh.***
Associate Professor, Department of Anesthesiology,
Reanimation and Emergency Medicine
Samarkand State Medical University E-mail: jonievssh@mail.ru

Abstract Peripartum cardiomyopathy (PPCM) is a rare but potentially fatal complication of pregnancy. The article analyzes modern strategies of intensive care in critical forms of PPCM. Pharmacological and non-pharmacological methods are described, including the use of bromocriptine, inotropes, and mechanical circulatory support devices (IABP, ECMO). Data from clinical studies and an algorithm for managing patients in the ICU are presented. The importance of a multidisciplinary approach is emphasized.

Keywords: peripartum cardiomyopathy, intensive care, ECMO, inotropes, bromocriptine, maternal mortality.

Introduction Peripartum cardiomyopathy develops during the last weeks of pregnancy or within 5 months postpartum and is characterized by progressive systolic dysfunction of the left ventricle (LVEF < 45%). Incidence ranges from 1:1000 to 1:4000 deliveries. The high mortality risk necessitates the implementation of standardized intensive care protocols.

Materials and Methods The review includes data from multicenter studies, clinical guidelines of the ESC (2023), ACC (2022), IPAC registry (2013), and publications from 2000–2024. Comparative analysis methods were used to evaluate the effectiveness of pharmacological and mechanical treatment strategies for PPCM.

Table 1. Classification of PPCM severity

Criterion	Mild form	Moderate	Severe
LVEF	40–45%	30–39%	<30%
Symptoms (NYHA)	Class II	Class III	Class IV
Hemodynamics	Stable	Decreased BP	Cardiogenic shock
Lactate	<2 mmol/L	2–4 mmol/L	>4 mmol/L

Main directions of therapy

Inotropic support Dobutamine, milrinone, levosimendan are used. Hemodynamic improvement is achieved in 65–70% of patients within 7–10 days.

Prolactin-inhibiting therapy Bromocriptine 2.5–5 mg/day + LMWH. Reduction of prolactin levels decreases cardiomyocyte apoptosis.

Standard heart failure therapy Beta-blockers, ACE inhibitors/ARBs, mineralocorticoid receptor antagonists, diuretics.

Mechanical circulatory support IABP — in severe left ventricular failure. ECMO — in refractory cardiogenic shock and respiratory failure.

Anticoagulant therapy Indicated when LVEF <35%, presence of thrombi, or during ECMO/IABP support.

Table 2. Outcomes of key therapeutic interventions

Method	Parameter	Outcome
Inotropes	LVEF improvement >10%	68% of patients (n=213)
Bromocriptine + standard care	Recovery of LVEF >50%	72% (vs 51% without bromocriptine)
ECMO	Survival	60% (vs 35% without ECMO)
Guideline-directed HF therapy	Reduction in 1-year mortality	–38%

Algorithm for management of PPCM patients in the ICU

Diagnosis: Echocardiography, NT-proBNP, troponin, lactate

Initial stabilization: Oxygen, diuretics, inotropes

Initiation of bromocriptine + anticoagulation

Decision regarding mechanical support (IABP/ECMO)

Monitoring and therapy titration

Transition to oral guideline-directed medical therapy upon stabilization

Discussion Early recognition of PPCM and aggressive intensive care significantly improve survival. Mechanical circulatory support devices play a key role in cardiogenic shock. Bromocriptine can be used as a pathogenetically targeted agent. Training of medical personnel and centralized routing of patients to specialized centers are required.

Conclusion Intensive care for peripartum cardiomyopathy should be individualized, timely, and based on modern principles of cardioresuscitation. The application of a multidisciplinary approach, standardized protocols, and advanced

technologies can substantially reduce maternal mortality and improve long-term outcomes.

References:

Mebazaa A, Tolppanen H, Mueller C, Lassus J, di Somma S, Baksyte G, et al. Acute heart failure and cardiogenic shock: a multidisciplinary practical guidance. Intensive Care Med. 2016; 42(2): 147–63. doi: 10.1007/s00134-015-4041-5.

Sheppard R, Rajagopalan N, Safirstein J, Briller J. An update on treatments and outcomes in peripartum cardiomyopathy. Future Cardiol. 2014. 10(3), 435–47. doi: 10.2217/fca.14.23

Sliwa K, Damasceno A, Mayosi BM. Epidemiology and etiology of cardiomyopathy in Africa.Circulation. 2005;112:3577–83. doi: 10.1161/ CIRCULATIONAHA.105.542894.

Sliwa K, Hilfiker-Kleiner D, Petrie MC, Mebazaa A, Pieske B, Buchmann E, et al. Current state of knowledge on aetiology, diagnosis, management, and therapy of peripartum cardiomyopathy: a position statement from Heart Failure Association of European Society of Cardiology Working Group on peripartum cardiomyopathy. Eur J Heart Fail. 2010; 12(8): 767-78. doi: 10.1093/eurjhf/hfq120

Stapel B, Kohlhaas M, Ricke-Hoch M, Haghikia A, Erschow S, Knuuti J, et al. Low STAT3 expression sensitizes to toxic effects of β-adrenergic receptor stimulation in peripartum cardiomyopathy. Eur Heart J. 2016; ehw086. doi: 10.1093/eurheartj/ehw086.

Sliwa K, et al. Current state of knowledge on aetiology, diagnosis, management, and therapy of peripartum cardiomyopathy. Eur J Heart Fail, 2010; 12:767-778.

Fett JD. Viral infection as a possible trigger for peripartum cardiomyopathy. Int J Gynaecol Obstet, 2007; 97:149-150.

Mielniczuk LM, et al. Incidence of peripartum cardiomyopathy in the United States. J Am Coll Cardiol, 2006; 48:1657-1662.

Pierce J, et al. Peripartum cardiomyopathy. Am J Cardiol, 1963; 12:345-350.

Sliwa K, et al. EURObservational Research Programme: Peripartum cardiomyopathy registry. Eur Heart J, 2020; 41:3599-3606.

Likar.Info. Peripartum cardiomyopathy. 2013;

Compendium. Peripartum cardiomyopathy: Recent insights. Compendium, 2023;

Medicover Hospitals. Peripartum cardiomyopathy: Causes, symptoms, treatment. 2024;

Krasotaimedicina. Secondary cardiomyopathy. 2021;

Medelement. Peripartum cardiomyopathy: Clinical protocols. 2014; Available at: diseases.medelement.com.

IPAC Study. Prospective study on peripartum cardiomyopathy. 2013;

ESC Guidelines. Management of acute heart failure. Eur Heart J, 2021; 42:3599-3726.

ICH GCP. Molecular-genetic screening in peripartum cardiomyopathy. 2023; Available at: ichgcp.net.