Cardio-obstetrics in the Cardiac Intensive Care Unit: An Introductory Guide

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Abstract

The care of the cardio-obstetric population in the cardiac intensive care unit is challenging due to limited data in this patient population. Optimal care requires a broad multidisciplinary team of experts such that both maternal and fetal health are fully supported. A deep understanding of the interplay between the hemodynamics of pregnancy and the clinical manifestations of varied cardiac disease states is essential. The assessment, diagnostic testing, and treatment of patients who are pregnant require special consideration, especially as teams consider pharmacological and invasive therapies. Complex ethical decisions often arise and therapies may be limited by federal and state policy, which adds an additional layer of complexity. This review serves as an introductory guide to cardio-obstetric care in the cardiac intensive care unit.

Keywords

Cardio-obstetrics, cardiac critical care, pregnancy, multidisciplinary care, ethics, mechanical circulatory support

Received: March 20, 2024 **Accepted:** January 13, 2025 **Citation:** *US Cardiology Review* 2025;19:e07. **DOI:** https://doi.org/10.15420/usc.2024.20

Disclosure: AG has received honoraria from Zoll for Fellows' Education, is Treasurer for the Society of Critical Care Cardiology, is PI for QUADRA-PE and Site PI for Empower-CAD. All other authors have no conflicts of interest to declare.

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As the maternal mortality rate in the US rises, cardiovascular disease (CVD) remains the leading cause of maternal death.[1,2] CVD accounts for 25% of maternal deaths, many of which are considered preventable.[3–7] The etiology of this rise is multifactorial with increasing maternal age and comorbidities including hypertension, diabetes, and obesity.[8,9] Racial–ethnic disparities and variable access to care also play a significant role.[9,10] In light of this, the developing field of cardio-obstetrics has become essential. The field focuses on the peripartum care of persons with or at risk for CVD, ranging from preconception counseling to outpatient monitoring as well as inpatient care in the cardiac intensive care unit (CICU), including in the peripartum period.[11] When CVD in pregnancy escalates to a severity that requires care in the CICU, a diverse range of expertise is required to provide care supportive of both maternal and fetal life. The care of these patients is challenging, particularly given the limited data in this patient population. Management is often guided by case reports and expert opinion. This review aims to provide an introductory guide to cardio-obstetric care in the CICU.

Hemodynamics of Pregnancy and Initial Assessment

Hemodynamics of Pregnancy and Considerations in the CICU

There are many hemodynamic and cardiovascular changes that occur over the course of pregnancy, continuing through labor and delivery and into the postpartum period.

In the first trimester there is a substantial decrease in systemic vascular resistance beginning around 5 weeks of gestation, which reaches a nadir in the middle of the second trimester, followed by a slow increase for the remainder of pregnancy.[12] Systemic vascular resistance normally returns to prepregnancy levels within a few weeks after delivery. There is also a decrease in systolic blood pressure, diastolic blood pressure, and mean arterial pressure during pregnancy. Arterial pressures reach a nadir during the second trimester and then begin to increase during the third trimester, generally returning to preconception levels a few months postpartum.[13]

There is activation of the renin–angiotensin–aldosterone system beginning early in pregnancy. This maintains blood pressure and helps retain salt and water given that maternal systemic and renal arterial dilation can lead to relative underfilling of the cardiovascular system. Total blood volume increases throughout pregnancy, beginning at 6–8 weeks of gestation and continuing to rise until 28–30 weeks. Plasma volume increases proportionally more than red blood cell mass, leading to a physiological anemia from hemodilution.[12]

Cardiac output increases throughout pregnancy to supply the increased demand from the placenta and fetus, as well as systemic demands such as myocardial and renal, with the sharpest rise occurring in the beginning of the first trimester, followed by a continued increase into the second trimester. By the end of the second trimester, cardiac output can increase by up to 45% of prepregnancy levels and often plateaus in the third

trimester.[14] Increased cardiac output early in pregnancy is thought to be mediated by a decrease in systemic vascular resistance and an increase in stroke volume, which gradually increases until the second trimester and then plateaus or decreases later in pregnancy. Later in gestation, the increase in cardiac output is largely due to an increase in heart rate, which increases progressively throughout pregnancy to reach a peak in the third trimester.[12] The normal increase in cardiac output in pregnancy is important to remember when caring for patients with systolic dysfunction and cardiogenic shock in pregnancy, given that it may mean targeting a higher cardiac output than in non-pregnant patients to preserve adequate fetal blood flow.

The maximum cardiac output during pregnancy occurs during labor and immediately after delivery, increasing to 60–80% above pre-labor values. This increase in cardiac output is due to many factors, including increased heart rate associated with the pain of uterine contractions, increase in catecholamines, and increase in preload from the uterine autotransfusion of 300–500 ml of blood from the uterus into the systemic circulation with each contraction.[15] Blood loss during delivery and positional changes during labor (supine versus left lateral decubitus) may have hemodynamic effects as well. These significant fluid shifts during delivery can lead to labile blood pressures, often rising just before delivery and then falling in the subsequent week.

Certain cardiac conditions cause delivery to be a high-risk time for both the pregnant person and fetus, given that some are unable to tolerate the hemodynamic stress accompanying labor. This can lead to cardiovascular collapse, cardiogenic shock, and acute right ventricular failure during and immediately after delivery.[16] It is not uncommon for cardiac conditions to be unmasked or exacerbated in the first trimester with the increase in blood volume, at 28–32 weeks when hemodynamic changes are maximal, and in the delivery/postpartum period due to changes in cardiac output and auto-transfusion.

Patient Assessment

The initial assessment of a pregnant patient presenting to the CICU begins with a comprehensive history and physical exam. The history should include current symptoms, baseline functional status before and during pregnancy, previous cardiac events, and reproductive history. Reproductive history should include details of prior pregnancies, as well as the outcome of each pregnancy including length of gestation, delivery methods, and any complications that occurred during or up to 12 months after pregnancy. Pregnancy-specific symptoms should be assessed depending on gestational age, such as contractions, leakage of fluid, vaginal bleeding, and fetal movement. If relevant, the patient should be questioned about pre-eclampsia-related symptoms such as headache, visual disturbances, and abdominal pain, to name a few. On physical exam, special attention should be paid to vital signs, cardiac and respiratory auscultation, and volume status. Fetal status should be assessed, as below. Deciphering normal physiological signs of pregnancy from signs of cardiac decompensation can be difficult and, as such, should be performed by those with experience and expertise in evaluating pregnant patients. Many common symptoms of pregnancy, such as palpitations, dyspnea on exertion, orthopnea, and ankle edema, are also symptoms of cardiovascular pathophysiology; therefore, context must be considered, including change from baseline, other associated symptoms, and vital sign abnormalities. Similarly, on physical exam, a soft systolic ejection flow murmur, a third heart sound, and mild pitting edema can occur with pregnancy. However, murmurs higher in intensity, diastolic murmurs, and continuous murmurs are not expected in a healthy pregnancy.[12] Any signs of potential cardiac disease in pregnancy should prompt further evaluation with basic laboratory studies, ECG, and echocardiogram.

Imaging

Imaging studies are essential in the diagnostic evaluation of critically ill pregnant patients. Selection of imaging modality should take into consideration both the clinical question at hand, as well as fetal safety. Ultrasonography and MRI are the imaging techniques of choice in pregnancy because they are associated with minimal risk to both pregnant patient and the fetus. The use of gadolinium contrast with cardiac MRI should be avoided unless it offers significant diagnostic benefit given the lack of fetal safety data. There is a paucity of safety data on saline bubbles and echo contrast used in echocardiogram. Both are used variably in clinical practice based on institutional preference.

There are normal echocardiographic changes that have been noted in pregnant patients, specifically increased left ventricular end-diastolic chamber sizes and interventricular septal thickness. There is a 5–10% increase in left ventricular mass and a 25–30% increase in wall thickness. It is also common to note an increase in left atrial area index. These changes are typically observed as early as the first trimester and return to baseline within 3–6 months after delivery.[17]

Exposure to ionizing radiation from X-ray, CT, and nuclear medicine imaging may be necessary. Radiation exposure less than 50 mGy is felt to pose no risk of fetal anomaly, growth restriction, or spontaneous abortion, a level lower than the dose of most diagnostic studies in these modalities. Oral contrast agents do not pose a fetal risk, and animal studies have not shown teratogenic effect of IV CT contrast.[18] Ultimately, shared decision-making discussions considering maternal benefit to theoretical fetal risk should occur between the patient and multidisciplinary care team, including radiologists and maternal and fetal medicine specialists. Clinically indicated testing should attempt to minimize radiation exposure, but should not be withheld for pregnancy alone.

Fetal Monitoring

Fetal assessment is generally based on gestational age and may include fetal heart tones, intermittent non-stress testing, or continuous fetal monitoring. Continuous fetal heart rate monitoring is often used during maternal critical illness and CICU admission to provide data regarding uteroplacental perfusion and fetal acid–base status. New-onset decelerations or change in fetal heart rate variability may be a marker of both fetal distress and worsening maternal health status, specifically end-organ perfusion. In order to be considered an appropriate location of care for pregnant patients, a unit should have the ability to provide fetal monitoring and intervention, if indicated.[19] Decisions regarding fetal monitoring should be made based on several considerations, including fetal gestational age, wishes of the pregnant person and their decision-makers if unable to consent, maternal health status, and clinical scenario.[19,20] These decisions should be made jointly with maternal–fetal medicine, neonatology, and anesthesia teams. Although fetal monitoring may be possible, maternal health may preclude the use of data from fetal monitoring. A preemptive discussion with the multidisciplinary care team, patient, and their family is recommended to determine the utility of fetal monitoring and plan of care should fetal heart rate tracing become non-reassuring.[20]

Multidisciplinary, Patient-centered Care

Multidisciplinary Team

Cardio-obstetric care requires multi-disciplinary team-based collaboration to ensure comprehensive and holistic management of patients.[21] In the

CICU, the team often consists of a cardiac intensivist, a cardio-obstetric cardiologist, the maternal–fetal medicine team, an obstetric and ideally cardiac-trained anesthesiologist, critical care, neonatologist, and perinatal nursing teams, as well social workers. Additional specialists may also be involved depending on the patient's pathology (e.g. adult congenital heart disease, electrophysiology, pulmonary hypertension, heart failure, cardiothoracic and vascular surgery). Neonatologists and critical care pharmacists should be included as ad hoc members of the cardio-obstetric team to ensure best maternal and fetal outcomes.[9,11] Given that many centers may not have access to these highly specialized providers, it is essential to have in place a mechanism for referral to a center with the ability to provide an appropriate level of care for a patient's specific cardiac pathology.[9]

Delivery Planning

A delivery plan should be created by the multidisciplinary team and informed by patient preferences and values. The delivery plan should include location, timing, mode of delivery, monitoring needs, necessary resources including need for hemodynamic support and nursing needs, and postpartum plan for parent and baby. The delivery plan should be made as early as possible in the care of high-risk patients and documented in the medical record. If one does not exist prior to admission to the CICU, a delivery plan should be made immediately upon admission. The timing of delivery for patients should be reevaluated daily by the team. The American College of Obstetricians and Gynecologists recommends elective induction of labor for pregnant patients with cardiovascular conditions at no later than 39–40 weeks.[9] Clinical decompensation often warrants even earlier delivery. Overall, timing of delivery should be decided based upon the goal of optimizing maternal health while minimizing fetal risk.

Mode of Delivery

In general, vaginal delivery is the preferred mode of delivery for most patients, although consideration of cesarean delivery occurs for obstetric indications (e.g. breech presentation, fetal distress, failure to progress) and certain high-risk cardiac conditions.[22] Unique delivery considerations for patients in the CICU include risks associated with Valsalva, such as cases of aortic aneurysms and associated aortopathies, as well as cases of significant left-sided obstruction such as severe mitral stenosis or obstructive hypertrophic cardiomyopathy.[23,24] In some cases, it may be appropriate to plan for assisted second stage of labor with forceps or vacuum.[22] For patients who are hemodynamically unstable, who require hemodynamic or ventilatory support or for whom delivery must be completed in the shortest time possible, cesarean delivery may be the preferred mode of delivery. For patients at high risk for hemodynamic instability during delivery who may require hemodynamic support, cesarean section with back-up cardiothoracic or interventional cardiology is generally recommended. These high-risk conditions include pulmonary arterial hypertension, decompensated heart failure or cardiogenic shock with underlying ventricular dysfunction, severely obstructed left-sided lesions (mitral stenosis, aortic stenosis, obstructive hypertrophic cardiomyopathy, and severe native coarctation), and significant aortic dilation. In the rare case of maternal cardiac arrest when return of circulation has not been achieved, perimortem cesarean section should take place within 4–5 minutes after cardiac arrest.[9,25]

Clinical Presentations and Management

Pregnant patients may have a broad range of clinical scenarios that require CICU care, with a varying degree of evidence for management decisions given that this population is frequently excluded from clinical trials. CICU management relies heavily on case reports and expert consensus, as well as trial data extrapolated from non-pregnant, typically male populations. Rather than provide exhaustive review of each potential disease state and its management, *Supplementary Table 1* serves as a reference for disease states and specific CICU care considerations and management recommendations.

Hemodynamic Assessment of Cardiogenic Shock in the Peripartum Patient

Full phenotyping and characterization of cardiogenic shock should be the standard of care for all patients with cardiogenic shock, including peripartum patients. As with a general cardiogenic shock population, the determination that cardiac output is adequately meeting the demands of pregnancy requires noninvasive hemodynamic assessment, laboratory evaluation, echocardiographic assessment and, frequently, invasive hemodynamic assessment via right heart catheterization. Interpretation of cardiovascular hemodynamics must take into account normal physiological adaptations to pregnancy, including changes in plasma volume, heart rate, and cardiac output as described above (*Figure 1*). Cardiac output may increase by up to 45% by 24 weeks of gestation in a typical singleton pregnancy, while in twin gestation it may be 15% higher.[12] There is a paucity of data on the use of cardiac index in pregnancy. Importantly, despite relative morphological changes observed during pregnancy, intracardiac filling pressures are unchanged in normal pregnancy. While there is a relative increase in atrial natriuretic peptide and B-type natriuretic peptide when compared with non-pregnant patients, the increase has been noted to remain within the normal range for healthy controls.[26]

Notably, cardiogenic shock is a dynamic process with severity of shock changing over time, thus requiring repeated assessment.[27]

Pharmacological Considerations for Cardiogenic Shock in the Peripartum Patient

Vasodilators

Classic cardiogenic shock is characterized by a high systemic vascular resistance and is often treated with systemic vasodilators, when the blood pressure allows. Nitroglycerin may be used in the setting of acute decompensated heart failure or as part of guideline-directed medical therapy. Nitroprusside is generally avoided due to a theoretical risk of cyanide toxicity.[28]

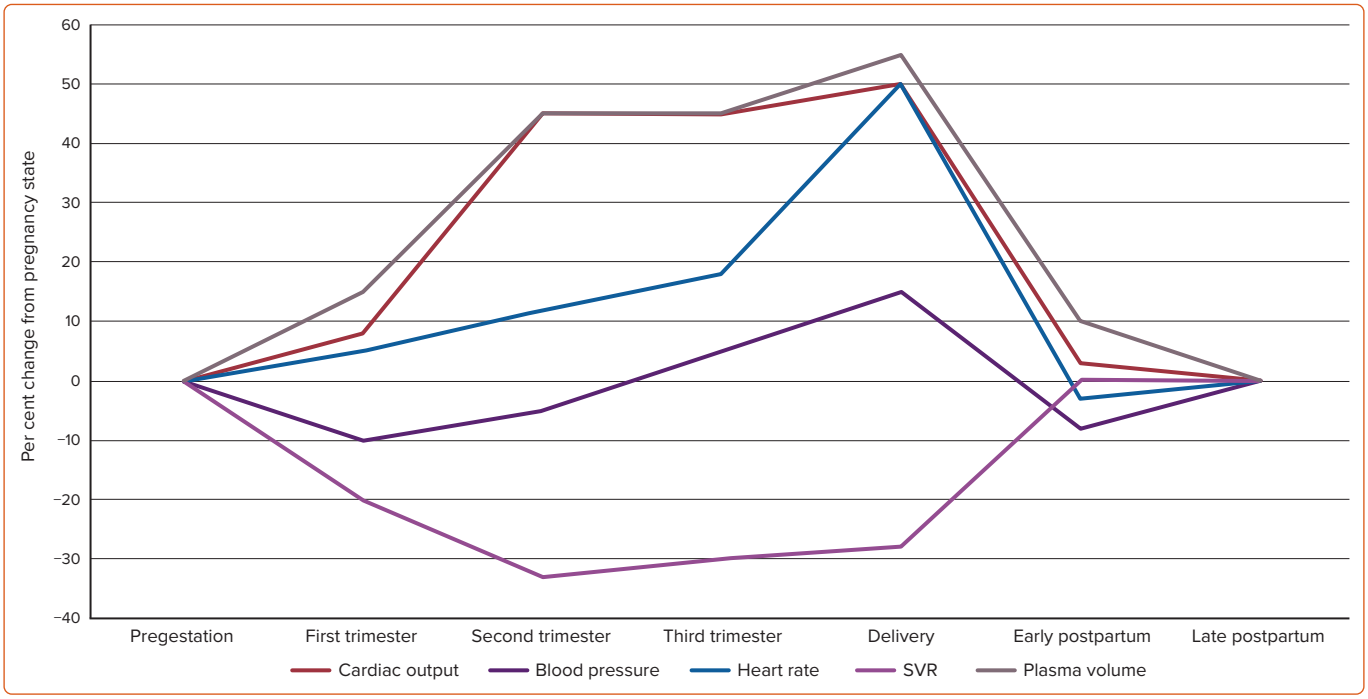
Inotropes

The most frequently used inotropes in the treatment of cardiogenic shock patients are dobutamine and milrinone. Neither drug is teratogenic, and both are considered safe in pregnancy. Milrinone is reported to be the preferred inotrope, but caution should be used in the setting of hypotension and/or renal dysfunction. Dobutamine may be safely used in patients who are breastfeeding, while milrinone safety is unknown.[29]

Vasopressors

Norepinephrine is the first-line vasopressor of choice for shock requiring vasopressors. Phenylephrine or epinephrine should be considered second-line therapies for refractory shock. Notably, the Surviving Sepsis Campaign recommends vasopressin as the second-line vasopressor.[30] However, in pregnant patients, vasopressin stimulates uterine contraction via vasopressin V1alpha receptors, which has been associated with premature birth and delayed development of the fetal cardiovascular system.[29]

Figure 1: Normal Hemodynamic Changes in Pregnancy.



SVR = systemic vascular resistant.

While medically necessary in cases of shock, vasopressors may decrease placental perfusion due to vasoconstriction. Close monitoring of the fetal heart rate is necessary for any pregnant patient treated with vasopressors.

Anticoagulation

Systemic anticoagulation may be considered in patients with cardiogenic shock and peripartum cardiomyopathy due to reports of increases in left ventricular thrombi and systemic thromboembolic events in patients with peripartum cardiomyopathy, as well as the hypercoagulable state of pregnancy and the early postpartum period. The American Heart Association suggests that anticoagulation be used when the left ventricular ejection fraction (LVEF) is less than 30%, while the European Society of Cardiology suggests usage when the LVEF is less than or equal to 35%.[31,32] Low-molecular-weight heparin has a better safety profile than unfractionated heparin. It does not cross the placenta and can be used safely during pregnancy. Warfarin does cross the placenta and should be avoided in most situations other than for patients with mechanical heart valves. The direct oral anticoagulants are generally avoided due to lack of data on their use in pregnant patients.[33] Delivery considerations may affect type and timing of anticoagulation.

Mechanical Circulatory Support in Cardiogenic Shock in the Peripartum Patient

Mechanical circulatory support may be considered in the peripartum patient when initial medical therapy fails to adequately provide hemodynamic support. While the 2022 American Heart Association/American College of Cardiology/Heart Failure Society of America guidelines give a 2a recommendation for initiation of temporary mechanical circulatory support in patients with cardiogenic shock, there are limited data on the timing of initiation or guidance on device selection in pregnant patients.[34] Ultimately, expert opinion suggests that appropriate mechanical support should not be withheld from pregnant or recently pregnant patients and that intra-aortic balloon pump (IABP), percutaneous left ventricular assist device (LVAD) (Impella system, Abiomed), and extracorporeal membrane oxygenation (ECMO) may all be considered.[35–39]

The majority of cases of cardiogenic shock in the peripartum period are caused by peripartum cardiomyopathy.[34] For patients with peripartum cardiomyopathy complicated by cardiogenic shock, 33% receive mechanical circulatory support.[40] In a review of 26 patients receiving temporary mechanical circulatory support, 26% of patients received more than one type of device. When only one device was used, 31% of patients received ventricular assist devices, 12% received an IABP, 7.6% received an Impella and 7.6% were placed on ECMO.[38] Retrospective data from the National Inpatient Sample suggest that pregnant patients have lower mortality when temporary mechanical circulatory support is deployed early rather than later (18.1% versus 38.1%; OR 0.33; 95% CI [0.13–0.86]).[40]

Intra-aortic Balloon Pump

In a general population of patients with cardiogenic shock, the IABP remains the most commonly used form of temporary mechanical circulatory support, despite decreasing usage over the prior decade.[41] The use of an IABP leads to 0.5–1 l/min of additional cardiac output, which, for pregnant patients with increased cardiac output requirements, may be a relatively minor augmentation of cardiac output.

Despite a small increase in cardiac output, multiple case reports detail the successful use of an IABP in patients with peripartum cardiomyopathy, in which these devices were used as a bridge to recovery, LVAD, or transplant. Additional literature exists demonstrating successful use of these devices in pregnant patients undergoing cardiopulmonary bypass, during cesarean section prior to percutaneous coronary intervention, or as myocardial support prior to cesarean section.[42–45]

Usage of an IABP in the peripartum period should involve consideration of risk of thrombocytopenia and anticoagulation strategies.

Thrombocytopenia may result from mechanical platelet destruction or from platelet deposition on the intra-aortic balloon membrane. The use of heparin may also lead to thrombocytopenia. When operated using 1:1 augmentation, there is no obligatory requirement for heparin usage, however, this practice is typically institution specific. As with any invasive procedure, the risk of bleeding should be considered relative to the patient's prothrombotic risk (in this case due to the prothrombotic state of pregnancy, combined with possible predisposition for left ventricular thrombus formation and venous thromboembolic events). The team should also consider the ability to access the common femoral artery in a patient with a gravid uterus.

Temporary Left Ventricular Assist Devices

In the US, the Impella (Abiomed) and the TandemHeart are the two available temporary percutaneous LVADs. The Impella family of devices consists of two devices that offer temporary left ventricular assistance, the Impella CP and the Impella 5.5, both of which decrease myocardial oxygen demand by unloading the left ventricle. The Impella CP can provide up to 3.5 l/min of cardiac output while the Impella 5.5 can provide up to 6 l/min of cardiac output. Both Impella devices require fluoroscopy for placement as well as usage of systemic anticoagulation, however, data extrapolated from coronary angiography suggest that fetal radiation exposure is well below levels associated with teratogenicity.[46] Hemolysis and bleeding may be seen when using an Impella device, thus close monitoring with laboratory work should occur daily. Unique to this population is the additional risk of fetal sensitization due to exposure to hemolyzed red blood cells.

There are multiple studies, case reports, and case series demonstrating the feasibility of the Impella family of devices for patients with cardiogenic shock in the peripartum period. Available literature suggests a high survival rate when using the Impella devices for patients with cardiogenic shock secondary to peripartum cardiomyopathy.[27]

When very high levels of cardiac output are required (up to 10 l/min), there are case reports and case series that have shown successful use of temporary biventricular assist devices placed via median sternotomy or lateral thoracotomy in postpartum patients with cardiogenic shock.[47–49] At present, there are no significant data to support the use of such a support strategy in pregnant patients prior to delivery.

Extracorporeal Membrane Oxygenation

Venoarterial ECMO (VA-ECMO) provides full cardiac and pulmonary bypass, and is most frequently used when left ventricular or biventricular support is needed, with or without oxygenation and ventilation. ECMO is the most common form of mechanical circulatory support used in pregnancy, although it is more commonly encountered as venovenous ECMO (VV-ECMO).[27] VA-ECMO may be deployed peripherally, most frequently via a cannula placed in the common femoral artery and a cannula placed in the common femoral vein. VA-ECMO can achieve flow rates in excess of 6 l/min, which may be appropriate in peripartum states in which higher cardiac output is required. In a review of 45 cases of patients requiring ECMO antepartum, only four cases involved VA-ECMO, with the majority of the remaining VV-ECMO cases used mainly for acute respiratory distress syndrome.[50] Notably, there are multiple case reports of successful use of VA-ECMO during cesarean section.[51]

ECMO usage in the peripartum period requires careful assessment of bleeding risk. ECMO cannulas are usually 16–25 Fr and systemic anticoagulation is usually required, although if ECMO flow rates are high enough, anticoagulation initiation may be deferred. Given the potential for high-volume blood loss at the time of delivery, the presence of large bore cannulas, and the potential need for systemic anticoagulation, VA-ECMO usage in a pregnant patient should be carefully assessed by a multidisciplinary team.

Orthotopic Heart Transplant

Patients with persistent myocardial dysfunction may be considered for orthotopic heart transplantation after delivery if they are unable to be weaned from mechanical circulatory support or in a delayed fashion if they continue to have persistent myocardial dysfunction refractory to optimal medical therapy. In a study of 485 women with peripartum cardiomyopathy who underwent heart transplantation between 1987 and 2010, this population had higher rates of graft failure and lower age-adjusted survival, posited to be secondary to increased rates of rejection, higher allosensitization, and higher pre-transplant acuity.[52]

CPR in Pregnancy

While CPR in pregnancy is very similar to the resuscitation of a non-pregnant person, there are several considerations and procedures that are unique, taking into consideration the presence of two patients: the pregnant patient and the fetus. Preparing the CICU staff on the management of cardiac arrest in pregnancy and the potential of perimortem cesarean section is essential. Chest compressions do not vary from current recommendations for adult chest compressions, although mechanical chest compressions are not recommended due to a lack of literature. Unique to pregnancy, continuous manual left uterine displacement should occur during CPR to allow for aortocaval decompression in patients with a uterus palpable at or above the umbilicus. There is no variation in recommendation for defibrillation or appropriate ventilation.

No medication should be withheld in the setting of cardiac arrest due to concern for fetal toxicity, including amiodarone. Fetal assessment and monitoring should not be performed. Immediate cesarean section may be indicated to optimize the pregnant patient and fetus. While the timing of perimortem cesarean section delivery is complex and should consider both maternal pathology and fetal gestational age, it should be considered if return of spontaneous circulation has not been achieved after ~4 minutes and, if maternal viability is not possible, should be initiated earlier. This should occur in place to avoid unnecessary delays. It should also be noted that perimortem hysterectomy may have resuscitative benefits to the pregnant patient.[53,54]

Ethics and Medical Decision-making

It is important to consider the challenging and difficult ethical issues that may arise when caring for pregnant patients in the CICU. While the principle-based ethics framework involving the four tenets of autonomy, beneficence, non-maleficence and justice are widely applicable in most medical settings, the unique issues faced in obstetrical care often require a more nuanced and individualized approach.[55] The 'feto-maternal' conflict refers to a situation in which the interests of the pregnant person's health may not correspond with the best interests of the fetus and vice versa.[56] The approach to the feto-maternal conflict will often depend on how the moral and legal status of the fetus is defined.[57] The care team has a duty to guide decisions, including timing and mode of delivery, that protect the rights and autonomy of the pregnant patient while also balancing the best interest of the fetus. Decisions regarding pregnancy termination may be affected by legal issues and state-specific gestational age limits of pregnancy termination. These complex decisions should be

guided by the goals and wishes of the patient or designated proxy, with input from multiple team members including the intensivist, maternal–fetal medicine expert, neonatologist and any cardiology subspecialist relevant to the patient's care. Other team members involved in these discussions may include anesthesia, nursing staff, social work and palliative care. Consultation with the hospital's ethics board can be highly valuable in some cases when decision-making is uncertain.

Conclusion

Care of the pregnant patient in the CICU is complex and challenging. With rising maternal mortality and preventable CVD driving maternal deaths in the US, it is imperative that maternal and fetal care be grounded in the available evidence and expertise of a multidisciplinary, expert, and experienced care team. This paper serves as an introduction and broad overview of CICU care for the cardio-obstetric population. ❑

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