

# Management of arrhythmias during pregnancy



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The 2023 HRS Expert Consensus Statement on the Management of Arrhythmias During Pregnancy, dedicated exclusively to gestational arrhythmias, is a notable milestone in the management of women with heart disease.<sup>1</sup> It is meant to be an instrumental tool for the complex care teams established for the management of pregnant women with heart disease.

This document strengthens the importance of the cardio-obstetrics team, ideally composed of a maternal-fetal medicine subspecialist, an electrophysiologist and/or a cardiologist with expertise in arrhythmias during pregnancy, a pediatric electrophysiologist when fetal arrhythmias are present, an anesthesiologist, and a neonatologist. A coordinated team approach has been shown to improve outcomes in all areas of medicine, and cardio-obstetric medicine is no exception.

A lack of high-quality studies has been highlighted in areas of maternal arrhythmia management, the optimal treatment of fetal arrhythmias, and the impact of treatment on maternal physiology. Pregnant women have long been excluded from large trials of arrhythmia management, leading to limitations in our ability to extrapolate data from these trials to the pregnant population.

Syncope is not uncommon during pregnancy, complicating about 1% of pregnancies, with the majority having a vagal etiology.<sup>2</sup> Syncope secondary to an arrhythmia or structural heart disease is associated with higher risk of adverse fetal and maternal outcomes, such as premature birth and congenital abnormalities.<sup>3</sup>

Supine hypotensive syndrome is unique to pregnancy and is commonly overlooked in the assessment of gestational presyncope. The left lateral positioning of the pregnant patient increases cardiac output significantly compared with a flat supine position.<sup>4</sup>

Palpitations are a very common pregnancy-related complaint,<sup>5</sup> and the most common arrhythmias are generally benign, including sinus arrhythmia or sinus tachycardia or isolated ectopy. Symptoms due to these arrhythmias generally tend to resolve after delivery.

Arrhythmias during pregnancy are more prevalent in the patient with structural heart disease. The incidence of gestational arrhythmia, particularly atrial fibrillation (AF) and ventricular arrhythmia (VA), is increasing as maternal age is increasing, as

are maternal cardiovascular comorbidities. Adverse fetal events, such as prematurity, occur more frequently in pregnant patients with antepartum arrhythmias, especially in those with an underlying maternal congenital or acquired heart disease.<sup>3,6,7</sup> Hospital admissions for gestational arrhythmia are associated with greater in-hospital mortality as well as maternal and fetal complications. The identification of underlying structural heart disease is the first step in management planning, particularly as it pertains to VAs and thromboembolic risk in atrial arrhythmias.

AF is becoming the most common newly diagnosed arrhythmia during pregnancy. Treatment strategy should be based on hemodynamic tolerance and the underlying substrate, as in nonpregnant patients. The well-established scoring systems for stroke risk in AF have not been validated for use in pregnancy, but they can be helpful in identifying women who may be at greater risk for cardioembolic events when traditional risk factors are present. Other indications for anticoagulation will be dictated by underlying structural heart disease. The management of anticoagulation in pregnancy has been well described, and the same principles apply to the patient with gestational AF.<sup>8</sup>

The overall approach to the treatment of gestational arrhythmias is similar to the approach in a nonpregnant patient, with modifications for fetal safety. This consensus document emphasizes that the care of the pregnant patient with hemodynamically significant arrhythmias takes precedence over fetal monitoring, as restoration of maternal hemodynamics is in the best interest of both mother and fetus. The established guidelines for acute management of arrhythmias,<sup>9,10</sup> and indications for permanent pacing or implantation of a defibrillator in the nonpregnant patient,<sup>11</sup> should be applied during gestation, with attention to the choice of drug treatment to avoid teratogenicity.

There are certain conditions wherein pregnancy strongly influences outcomes. Maternal long QT syndrome is associated with a higher risk of postpartum cardiac events in women considered to be “low” risk.<sup>12</sup> In this case, the protective capacity of beta-blockade, particularly in the first 9 months postpartum, cannot be overstated. The other is the management of maternal cardiac arrest. Resuscitation in pregnancy must be optimized by left lateral uterine displacement, avoiding breast tissue when positioning defibrillation pads, and, in later pregnancy, preparation for urgent resuscitative hysterotomy.

There are limited data regarding antiarrhythmic therapy in pregnancy. A risk-to-benefit discussion should consider

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established arrhythmia treatment guidelines and the safety of drug use during pregnancy and lactation.

Fetal arrhythmias present a unique challenge to caregivers given the potential risk fetal hydrops. Sustained fetal tachycardias usually are treated by transplacental administration of antiarrhythmic drugs, direct fetal administration, or delivery of the infant,<sup>13</sup> if viability has been achieved.

This consensus statement highlighted the safety and efficacy of zero fluoroscopy-guided ablation procedures.<sup>14</sup> Coordination with a cardio-obstetrics team should include planning urgent delivery, especially with high-risk interventions. The risk of caval compression also should be considered, especially for procedures requiring anatomic mapping systems in which any patient movement needs to be minimized.

The method of delivery is dictated by obstetrical factors, and there is often no cardiovascular advantage to an operative delivery.<sup>15</sup> Epidural analgesia may be encouraged, with limited evidence supporting this approach in arrhythmia prophylaxis.<sup>16</sup> Telemetry monitoring is indicated for women with a history of cardiac arrest, severe systemic ventricular systolic dysfunction, poor functional class, high-grade VA, or pre-excited AF.

The establishment of this international consensus document is an important milestone for the community dedicated to the care of pregnant patients with heart disease. It is a testament to the success of generations of cardiologists caring for women with heart disease that these women are now reaching childbearing age and achieving term pregnancies under their care. It is an acknowledgement of what has been achieved thus far and an important opportunity to examine gaps in knowledge in the emerging field of gestational arrhythmia management.

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