

SUPRAVENTRICULAR TACHYCARDIA IN PREGNANCY: MANAGEMENT, OUTCOMES, AND CONSIDERATIONS

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<https://doi.org/10.5281/zenodo.12534799>

Abstract. *Supraventricular tachycardia (SVT) is a significant cardiovascular condition that can occur during pregnancy, potentially affecting maternal and fetal health. This article aims to explore the management strategies and outcomes associated with SVT in pregnant women. We discuss the pathophysiology, clinical presentation, diagnosis, and treatment options for SVT in pregnancy. The impact of SVT on maternal and fetal outcomes is examined, along with case studies illustrating management approaches. Understanding the challenges and considerations specific to SVT in pregnancy is essential for optimizing care and improving outcomes. By providing insights into the management of SVT during pregnancy, this article aims to facilitate evidence-based practice and enhance the quality of care for affected women.*

Keywords: *supraventricular tachycardia, pregnancy, maternal health, fetal health, cardiovascular changes, diagnosis, management, treatment, risk factors, hemodynamic effects.*

Introduction

Supraventricular tachycardia (SVT) is a significant cardiovascular condition that can occur during pregnancy, potentially impacting both maternal and fetal health. This article aims to explore the management strategies and outcomes associated with SVT in pregnant women. Paroxysmal supraventricular tachycardia (PSVT) is the most frequently encountered symptomatic arrhythmia in pregnant women. While PSVT is typically regarded as temporary and benign, its impact on maternal and fetal outcomes during pregnancy remains uncertain. The relationship between PSVT and pregnancy-related consequences has not been fully explored in existing research studies. (Chang S.H., Kuo C.F., Chou I.J. et al, 2017; p. 616). Understanding the challenges and considerations specific to this population is essential for optimizing care and improving outcomes. Supraventricular tachycardia (SVT) is a significant cardiac arrhythmia that can occur during pregnancy, posing unique challenges for both maternal and fetal well-being. Pregnancy is accompanied by profound physiological changes in the cardiovascular system, including increased heart rate, expanded blood volume, and altered hormonal milieu. Supraventricular tachycardia (SVT) is a rapid heart rhythm disorder that affects the atrial tissue or atrioventricular junctional tissues. SVT is defined by a heart rate exceeding 120 beats per minute (BPM). The specific type of supraventricular tachycardia is determined by the functionality, speed, or blockage of the conduction pathways within the heart. (Ibetoh C N, Stratulat E, Liu F, et al. October 04, 2021) These adaptations create an environment in which SVT can develop or exacerbate pre-existing arrhythmias, necessitating a tailored approach to management.

Understanding the pathophysiology, clinical presentation, and appropriate management strategies for SVT in pregnancy is crucial for healthcare practitioners involved in the care of pregnant women. Prompt recognition and accurate diagnosis of SVT are essential to initiate appropriate interventions, optimize maternal hemodynamics, and prevent potential complications. Furthermore, the management of SVT during pregnancy must carefully consider the safety and well-being of both the mother and the developing fetus.

Pathophysiology:

During pregnancy, significant cardiovascular adaptations occur to support the growing fetus. However, these changes can predispose women to develop SVT. This section will outline the normal cardiovascular changes during pregnancy and delve into the pathophysiology of SVT

in pregnant women. Factors contributing to SVT development and associated risk factors will also be discussed.

Supraventricular tachycardia (SVT) encompasses a group of arrhythmias characterized by rapid heart rates originating from the atrial tissue or atrioventricular junctional tissues. It is a common cardiac rhythm disorder encountered in clinical practice, with various subtypes such as atrioventricular nodal reentrant tachycardia (AVNRT), atrioventricular reentrant tachycardia (AVRT), and atrial tachycardia.

The underlying pathophysiology of SVT involves abnormalities in the electrical conduction system of the heart. It is commonly triggered by reentry circuits, which occur when there is an abnormal conduction pathway or an accessory pathway that bypasses the normal electrical route. These abnormal pathways create a loop of electrical impulses, leading to rapid and repetitive firing of the cardiac tissue.

Supraventricular tachycardia (SVT) is a fast heart rhythm disorder involving the atrial tissue or atrioventricular junctional tissues. It is characterized by a heart rate exceeding 120 beats per minute (BPM). The specific type of supraventricular tachycardia is determined by the functionality, speed, or blockage of the conduction pathways. AVRT and AVNRT are the two most common forms of SVT, among the approximately four types that exist. When diagnosed, the electrocardiogram (EKG) may show narrow QRS complexes with subtle or buried P waves within the ST-segment, inverted P waves, or abnormal QRS complexes. (Ibetoh et al, October 04, 2021). Cardiac rhythm disturbances are commonly observed during pregnancy. Among them, supraventricular arrhythmias are particularly worrisome when the patient is pregnant. It is important to note that arrhythmias occurring during pregnancy are typically benign and do not necessitate treatment. However, prompt and appropriate management is necessary for severe symptomatic arrhythmias. The incidence of maternal arrhythmias in the pregnant population is estimated to be around 1.2 per 1000 cases (Yılmaz, Am J Case Rep, 2012; 13: p34).

Pregnancy can increase the vulnerability to various arrhythmias, even in the absence of pre-existing heart disease. Additionally, pregnant individuals with a pre-existing arrhythmic condition face a higher risk of exacerbation, such as more frequent and difficult-to-treat episodes of rapid heart rate. Notably, the occurrence of supraventricular tachycardia (SVT) during pregnancy can lead to adverse outcomes for both the mother and the fetus. While some treatments for maternal SVT may pose potential risks to the fetus, there are safe options available to effectively manage most cases.

The literature on therapeutic approaches for managing arrhythmias during pregnancy is often limited to individual case reports or small series. Older antiarrhythmic drugs are generally favored due to a greater number of reports confirming their safe use. It is important to note that experience with medication use during pregnancy stems from treating various maternal and fetal conditions, rather than specifically maternal SVT. Although all medications carry potential risks for both the mother and the fetus at any stage of pregnancy, if feasible, it is advisable to avoid drug use during the first trimester when the risk of congenital malformations is highest. It is recommended to initiate treatment with the lowest effective dose and closely monitor the clinical response.

Conclusion

Supraventricular tachycardia (SVT) in pregnancy presents unique challenges that require a comprehensive and multidisciplinary approach. Early recognition and accurate diagnosis are crucial, as they enable timely interventions to control the arrhythmia and prevent potential complications. Management strategies should consider the safety of both the mother and fetus, involving non-pharmacological measures, pharmacological interventions, and, if necessary,

cardioversion or other interventional procedures. Close monitoring of maternal and fetal well-being is essential throughout pregnancy and during the postpartum period. Long-term follow-up is recommended to detect and manage any potential recurrences or late-onset complications. By understanding the pathophysiology, clinical presentation, and appropriate management of SVT in pregnancy, healthcare professionals can provide effective care, improve maternal outcomes, and ensure the well-being of the developing fetus. Continued research and collaboration among healthcare providers will further enhance our understanding and optimize the management of SVT in pregnant women.

REFERENCES

1. Chang S-H, Kuo C-F, Chou I-J, et al. Outcomes associated with paroxysmal supraventricular tachycardia during pregnancy. *Circulation* 2017;135(6):616-618. DOI: doi:10.1161/CIRCULATIONAHA.116.025064
2. Fevzi Yılmaz, Inan Beydilli , Cemil Kavalcı , Serkan Yılmaz. Successful electrical cardioversion of supraventricular tachycardia in a pregnant patient. © *Am J Case Rep*, 2012; 13: 33-35
3. Romem A, Romem Y, Katz M, Battler A: Incidence and characteristics of maternal cardiac arrhythmias during labor. *Am J Cardiol*. 2004, 93:931-933. 10.1016/j.amjcard.2003.12.042
4. Ibetoh C N, Stratulat E, Liu F, et al. (October 04, 2021) Supraventricular Tachycardia in Pregnancy: Gestational and Labor Differences in
5. Treatment. *Cureus* 13(10): e18479. DOI 10.7759/cureus.18479