



Anesthetic Management for the Parturient with Wolff-Parkinson-White Syndrome

Heidi M. Heyman, MD; Courtney Hood, MD; Michael Hart, MD

Introduction

- Wolff-Parkinson-White (WPW) syndrome is characterized by an *accessory pathway* in the heart's conduction system.
- The accessory pathway conducts an impulse more quickly than the AV node and causes *premature ventricular depolarization*. This can lead to life-threatening arrhythmias, posing exceptional risk to both mother and fetus during childbirth.¹

Case

- 26-year-old G2P1 with a history of WPW syndrome and asymptomatic bicuspid aortic valve.
- One prior SVD without complication, non-medicated.
- WPW discovered at 10 years old due to shortness of breath and palpitations.
- No cardiac medications or prior ablations.
- IOL at 39 weeks.

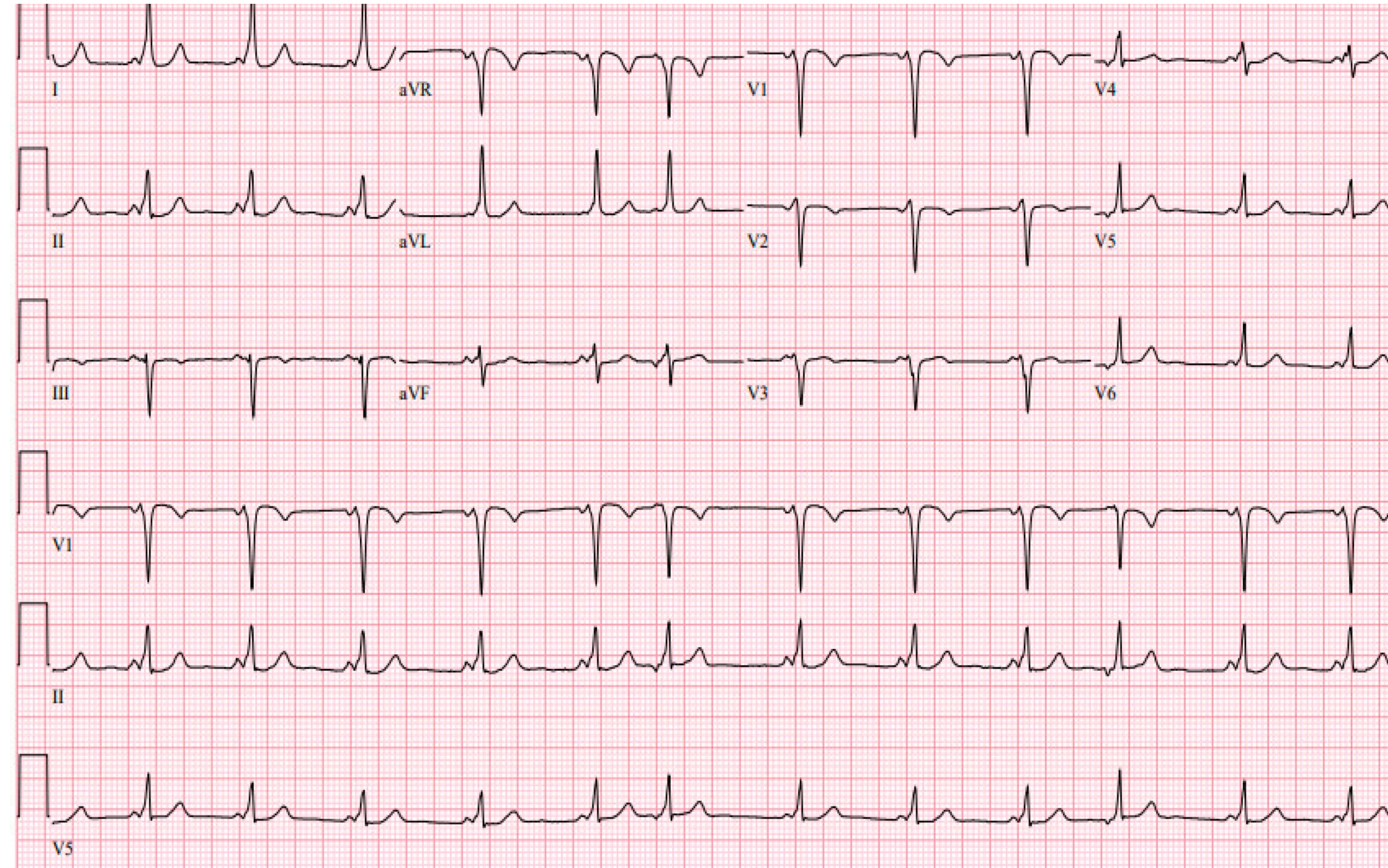


Figure 2. The patient's ECG demonstrating characteristic ventricular pre-excitation, shortened PR interval, and delta waves.

Work Up

- **ECG** showing ventricular pre-excitation suggestive of right-sided anterior/anteriolateral pathway
- **Zio patch** study showing predominately underlying NSR
- **TTE** showed EF 55-60% and normal biventricular function
- As part of her bicuspid aortic valve workup, an **MRA** was performed showing an ascending thoracic aortic diameter measuring 2.5 cm
- CARPREG II score = 4, 22% risk of cardiac complications. mWHO class II, small increased risk of maternal mortality or moderate increase in morbidity.
- Multidisciplinary meeting with MFM, Cardiology, OB Anesthesia, L&D Nursing



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Anesthetic Plan: Preparing for the Worst

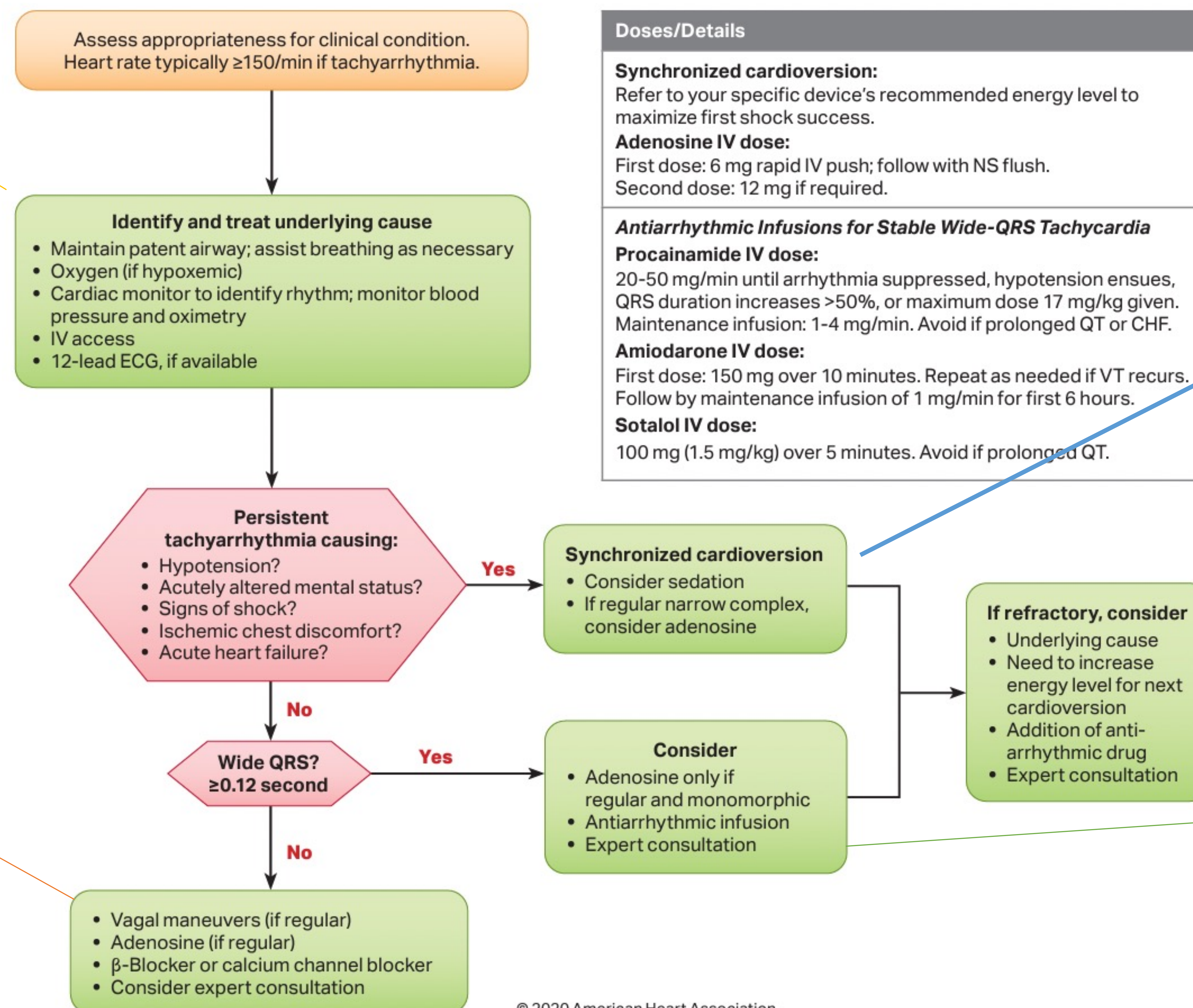
Minimize and Identify Arrhythmias

- Continuous 5-lead telemetry, remotely monitored; continue for 24 hours post partum
- Avoid terbutaline, ephedrine, hydralazine, epinephrine
- Offered early labor epidural
- Optimize electrolytes and fluid status

Avoid AV Nodal Blocking Drugs²

- In WPW: adenosine, CCB, BB can all block the native AV node, increasing antegrade conduction through the accessory pathway and worsening the arrhythmia

Adult Tachycardia With a Pulse Algorithm



Cardiovert Unstable Arrhythmias Rapidly²

- Cardioversion is safe in pregnancy!
- Consider fetal distress an indication
- Standard pad placement – avoid the uterus in electrical pathway (hypertonus)
- Remove fetal scalp electrodes

Procainamide is a Safe Choice³

- 10 mg/kg, administered at 20-50mg/min
- FDA category C, meaning that risk to the fetus cannot be ruled out



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Outcome

- Received an epidural for labor analgesia at 4 cm
- Delivered a healthy girl 6 hours later
- No arrhythmias occurred during labor or post partum
- Discharged on PP day 1
- Underwent EP study 2 months later, pending ablation

Learning Points

- Cardiac arrhythmias are among the most common cardiac complications encountered during pregnancy³
- Anterograde conduction through the accessory pathway in WPW allows rapid transmission of atrial impulses to the ventricle. This can be exacerbated or initiated by the use of AV nodal blocking agents.
- Vagal maneuvers, procainamide, and synchronized cardioversion are treatments of choice and likely pose minimal risk to the fetus.