Case 8
Unstable Tachycardia
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Learning Objectives

At the end of Case 8 be able to
- Recognize unstable tachycardia
- Recognize that instability is due to the tachycardia
- Rapidly identify the specific rhythm
- Follow algorithms for tachycardias and cardioversion
- Properly perform synchronized cardioversion
- Provide post-cardioversion treatment and monitoring

Case Scenario

- Your patient: a 45-year-old woman
- CC: palpitations, difficulty breathing, severe pressure on her chest, extreme weakness
- “I feel like I’m going to faint.”

Is the patient stable or unstable?

Classify Specific Tachycardia

1. Atrial fibrillation/flutter
2. Narrow-complex tachycardias
   - Paroxysmal supraventricular tachycardia (PSVT)
   - Junctional tachycardia
   - Multifocal atrial or ectopic atrial tachycardia
### Classify Specific Tachycardia

3. Wide-complex tachycardia of unknown type  
   - Wide-complex tachycardia—not specified  
   - Aberrant conduction of an SVT  
4. Ventricular tachycardia  
   - Stable monomorphic VT  
   - Stable polymorphic VT (baseline QT interval normal)  
   - Stable polymorphic VT (baseline QT interval prolonged = torsades de pointes

### Know How to

- Operate defibrillator/monitor to both defibrillate and cardiovert  
- Monitor rhythm through pads or paddles  
- Define "defibrillation" vs "cardioversion"  
- Switch to defibrillator/monitor mode or cardioversion mode  
- Attach monitor leads in modified lead II configuration  
- Recognize when device is in active synchronization mode  
- Switch from synchronized cardioversion to unsynchronized defibrillation  
- Understand major elements of post-cardioversion care: oxygen, IV access, monitoring, antiarrhythmics

### Electrical Cardioversion

_Immediate electrical cardioversion is indicated for a patient with serious signs and symptoms related to the tachycardia._

### Sinus Tachycardia

**Paroxysmal Supraventricular Tachycardia**

If a patient with sinus tachycardia is unstable, the cause is usually not a rate problem but a problem with volume or pumping.

### Supraventricular Arrhythmias

- Atrial flutter and fibrillation with hemodynamic compromise  
  - Promptly restore normal sinus rhythm  
  - Synchronized DC cardioversion or rapid atrial pacing  
  - Avoid verapamil if hypotension or LV failure present
Supraventricular Arrhythmias

- PSVT with hemodynamic compromise
- Synchronized cardioversion

Ventricular Tachycardia

- Unstable: synchronized cardioversion
- Post-conversion: antiarrhythmics

Afib/Flutter: Treatment

Why should anticoagulants should be considered?

Atrial Flutter: Atrial Rate = 250 bpm, Ventricular Rate = 125 bpm

Atrial Flutter:

Atrial Flutter/Fibrillation: Treatment

- Indications for synchronized cardioversion
  - Any unstable condition related to tachycardia
  - Chest pain
  - AMI
  - Shortness of breath
  - Pulmonary congestion/CHF
  - Decreased level of consciousness
  - Low blood pressure
  - Shock
**Synchronized Cardioversion**

- **Procedure**
  1. Attach monitor leads to patient
  2. Apply conductive material to paddles if not using hands-free defibrillation pads
  3. Turn on defibrillator

- **Procedure (cont’d)**
  4. Turn on synchronization mode
  5. Verify synchronization signal on monitor screen
  6. Select energy level
  7. Place defibrillator paddles on chest and apply pressure (if necessary)
  8. Charge defibrillator

- **Energy selection**
  - PSVT: 50 J, 100 J, 200 J, 300 J, 360 J
  - VT: 100 J, 200 J, 300 J, 360 J
  - Polymorphic VT (treat like VF): 200 J, 200 to 300 J, 360 J
  - Atrial fibrillation: 100 J, 200 J, 300 J, 360 J
  - Atrial flutter: 100 J, 200 J, 300 J, 360 J

- **Premedicate with both a sedative and an analgesic if appropriate**
  - **Sedatives**
    - Diazepam
    - Midazolam
    - Barbiturates
    - Etomidate
    - Ketamine
    - Methohexital
  - **Analgesics**
    - Fentanyl
    - Morphine
    - Meperidine