
ECG Bootcamp

February 22nd, 2025

Guide for the day

- Please participate and ask questions.
- Please put your name and year of training on your profile.
- Join the breakout session you are assigned to.
- Please fill out the survey at the end:

<https://www.surveymonkey.com/r/IHEEKG2>

Management strategy

- Assess patient (rhythm is fast)
 - Narrow or wide complex?
 - Regular or irregular?
 - Pulse or pulseless?
 - Hemodynamics?
 - What are the available management options (please discuss)?





Manual defibrillation
with clear 1-2-3 steps



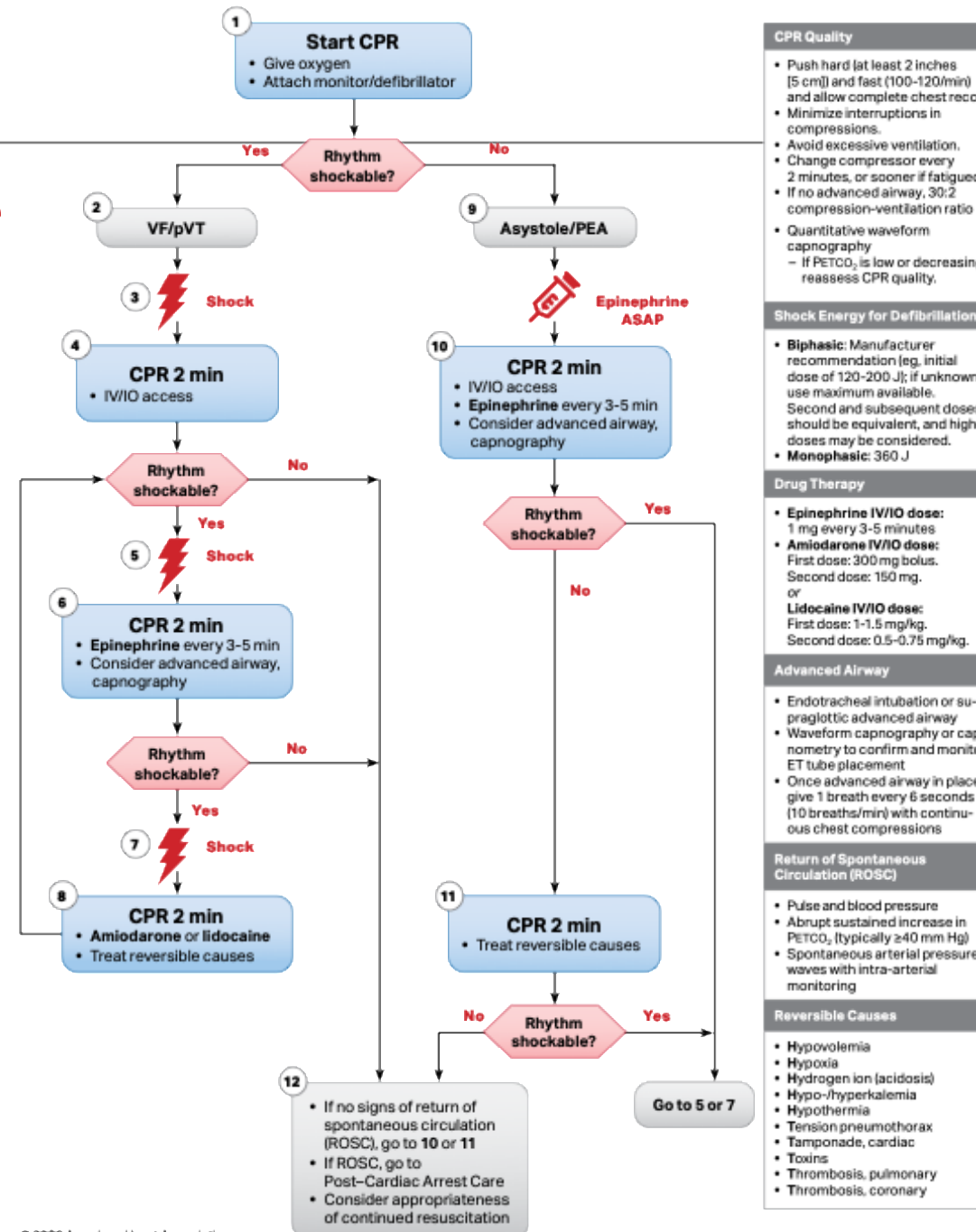
1. Select Energy
2. Charge
3. Shock



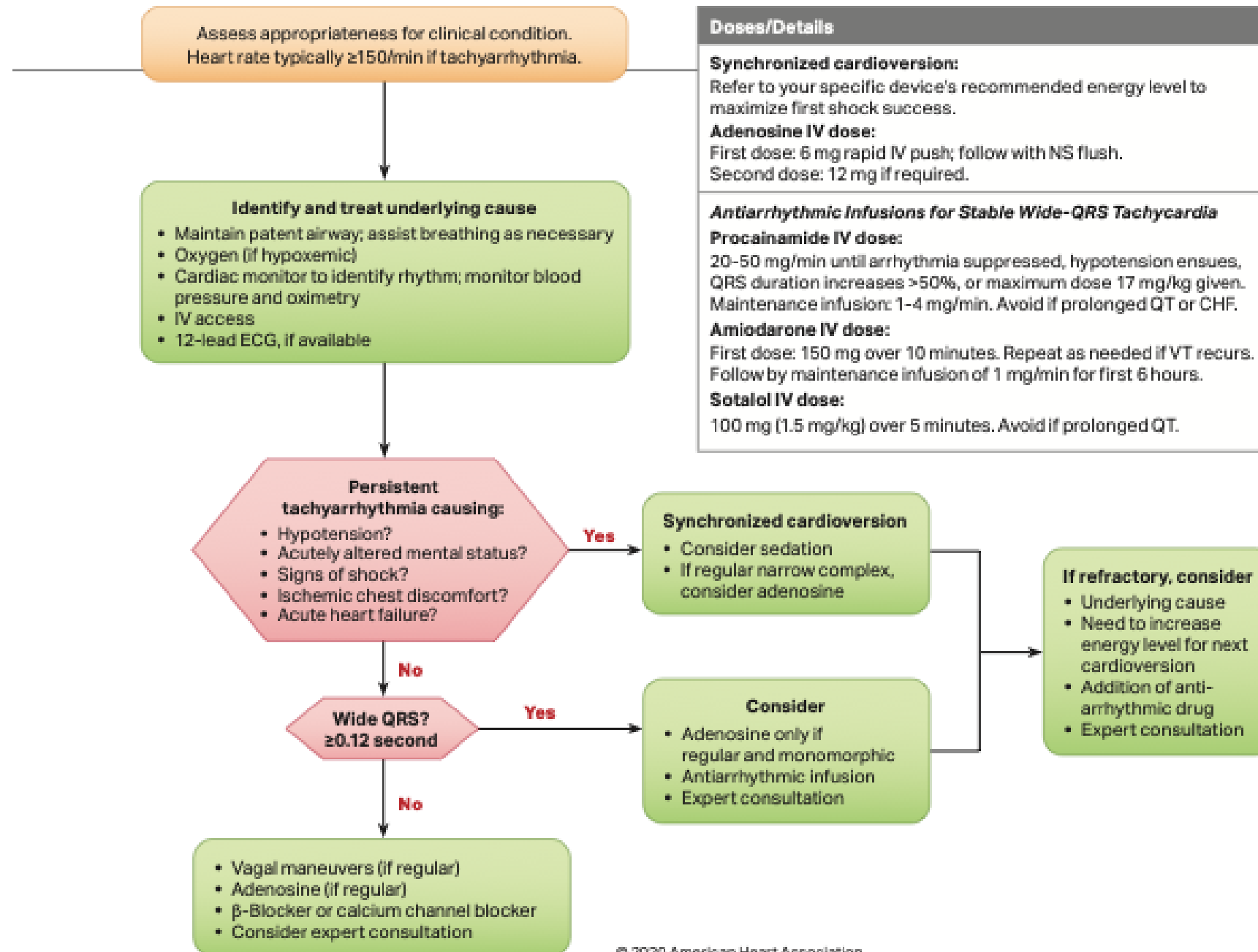
External Paddles with
function buttons

Buttons for energy selection, charging
and shock delivery improve usability for
clinicians.

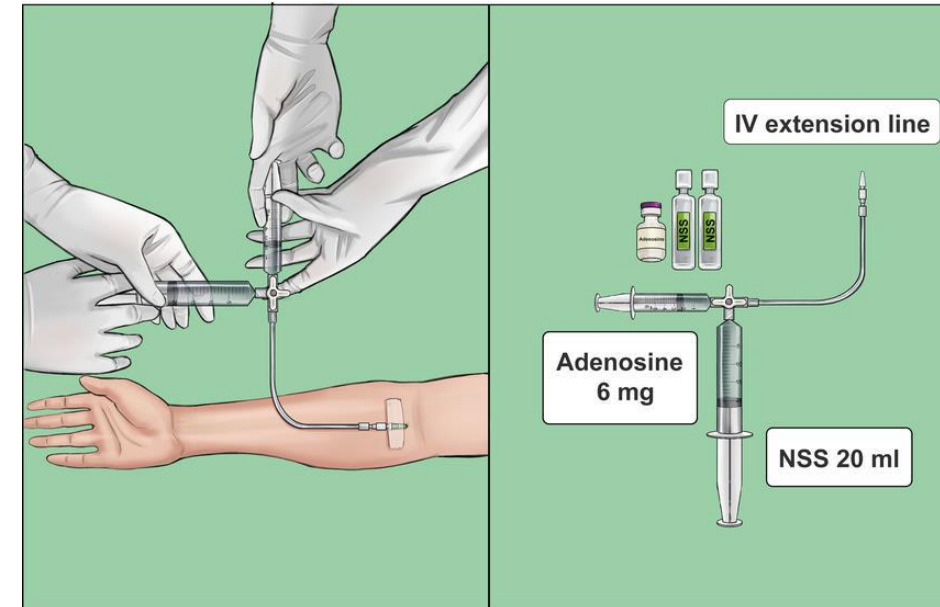
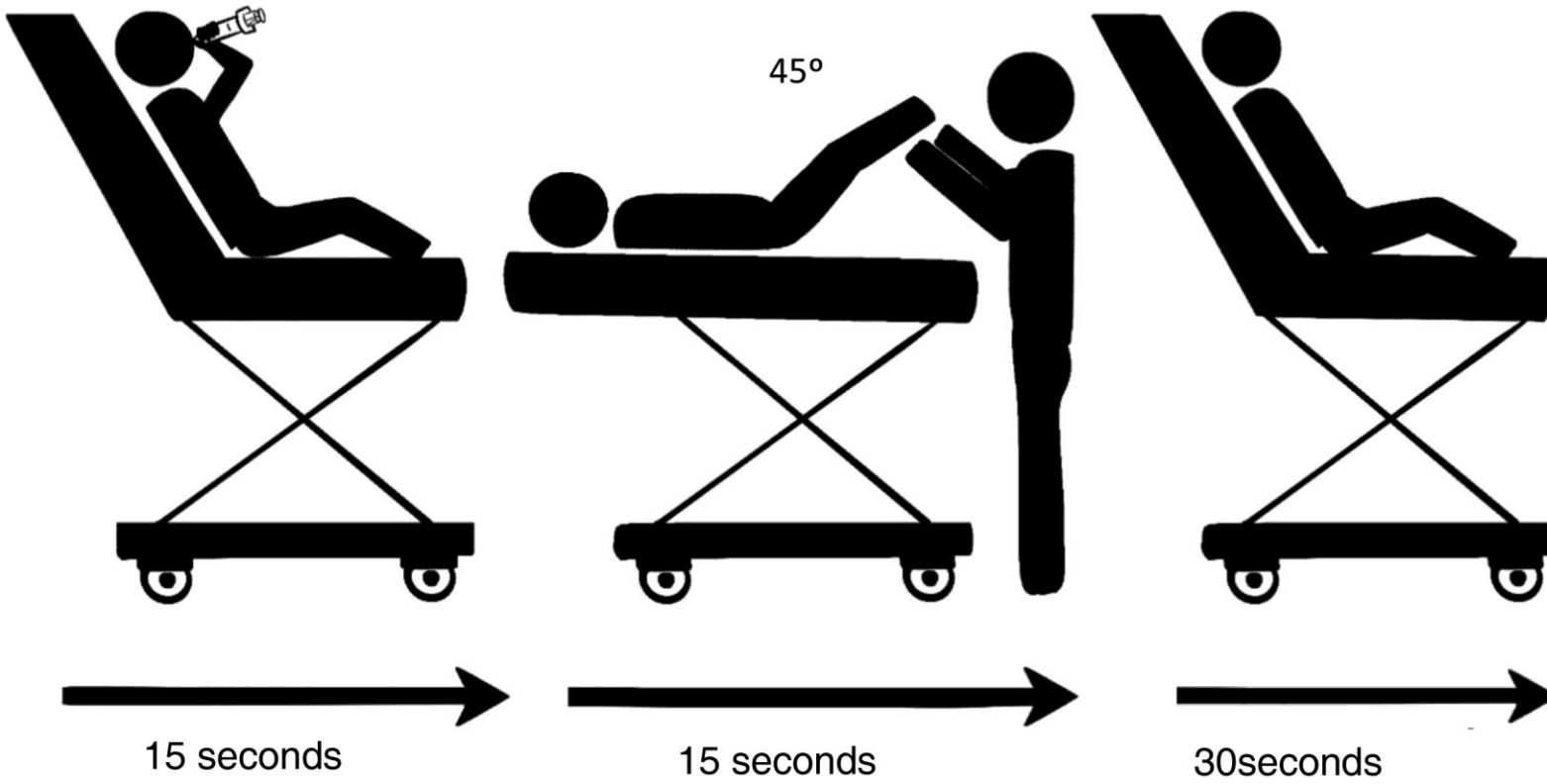
Patient without a pulse



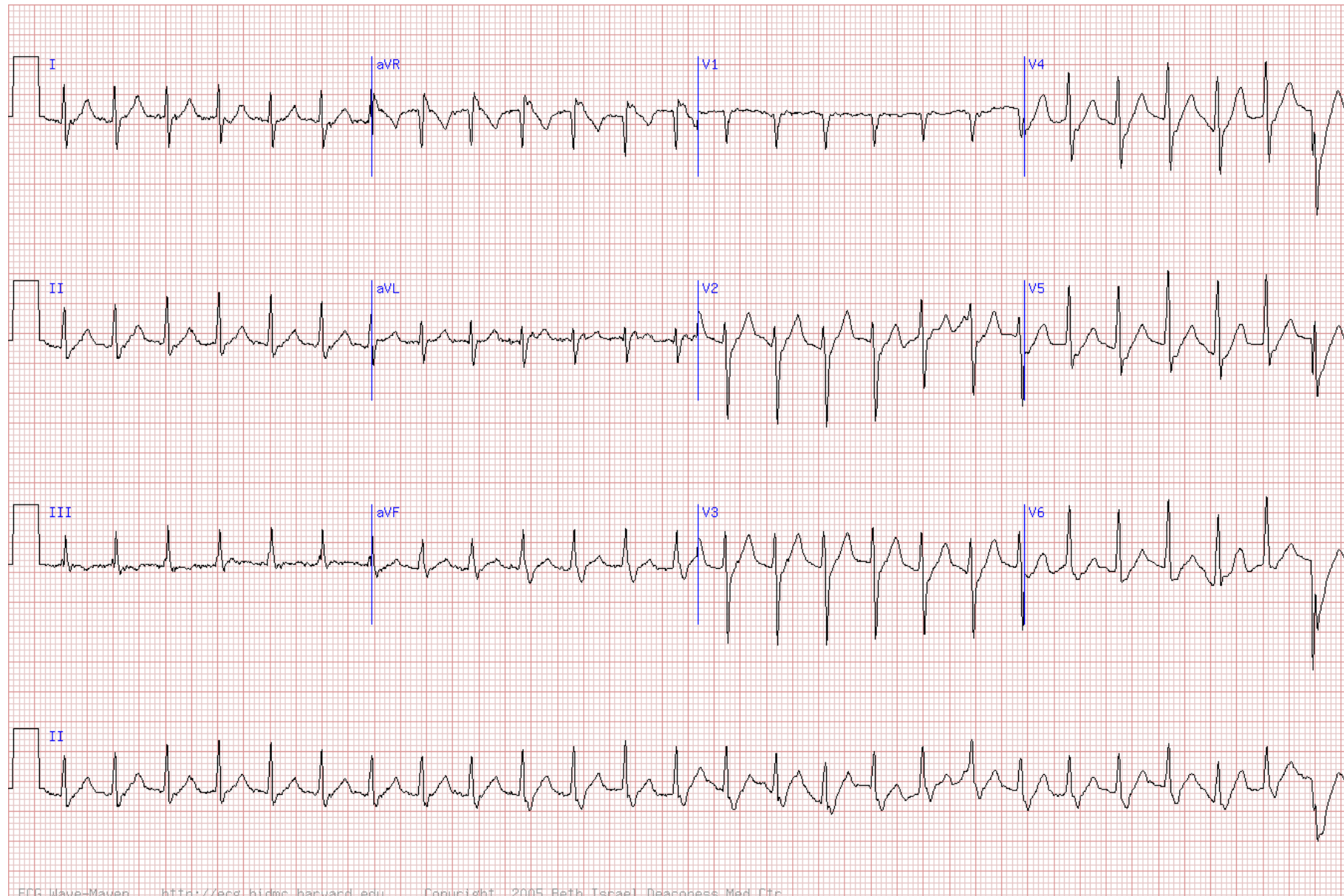
CPR Quality
- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil. - Minimize interruptions in compressions. - Avoid excessive ventilation. - Change compressor every 2 minutes, or sooner if fatigued. - If no advanced airway, 30:2 compression-ventilation ratio - Quantitative waveform capnography - If PETCO₂ is low or decreasing, reassess CPR quality.
Shock Energy for Defibrillation
Biphasic: Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered. Monophasic: 360 J
Drug Therapy
Epinephrine IV/IO dose: 1 mg every 3-5 minutes Amiodarone IV/IO dose: First dose: 300 mg bolus. Second dose: 150 mg. - or Lidocaine IV/IO dose: First dose: 1-1.5 mg/kg. Second dose: 0.5-0.75 mg/kg.
Advanced Airway
- Endotracheal intubation or supraglottic advanced airway - Waveform capnography or capnometry to confirm and monitor ET tube placement - Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions
Return of Spontaneous Circulation (ROSC)
- Pulse and blood pressure - Abrupt sustained increase in PETCO₂ (typically ≥40 mm Hg) - Spontaneous arterial pressure waves with intra-arterial monitoring
Reversible Causes
- Hypovolemia - Hypoxia - Hydrogen ion (acidosis) - Hypo-/hyperkalemia - Hypothermia - Tension pneumothorax - Tamponade, cardiac - Toxins - Thrombosis, pulmonary - Thrombosis, coronary

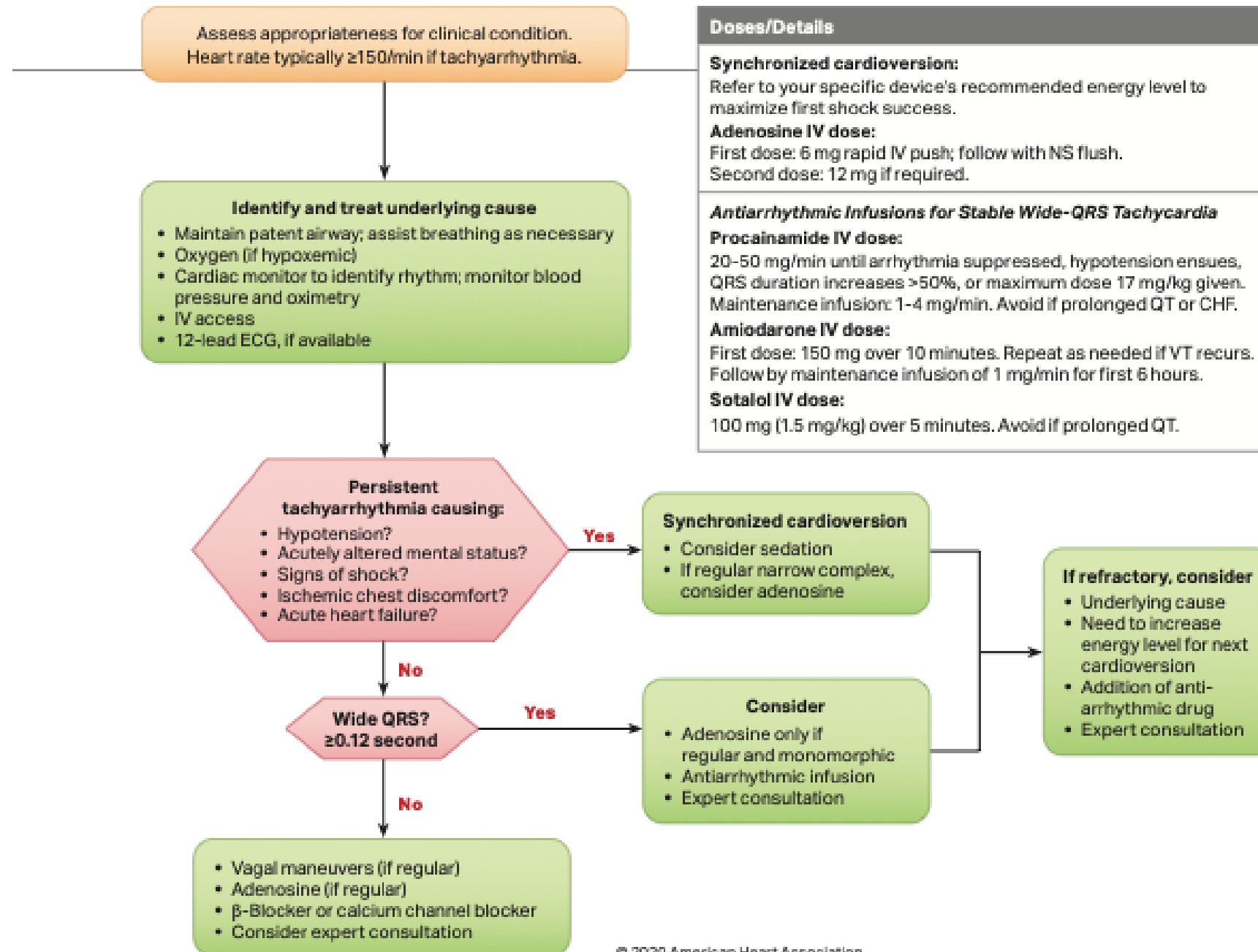


- Narrow or wide complex?
- Regular or irregular?
- Hemodynamics?
- What are the available management options?



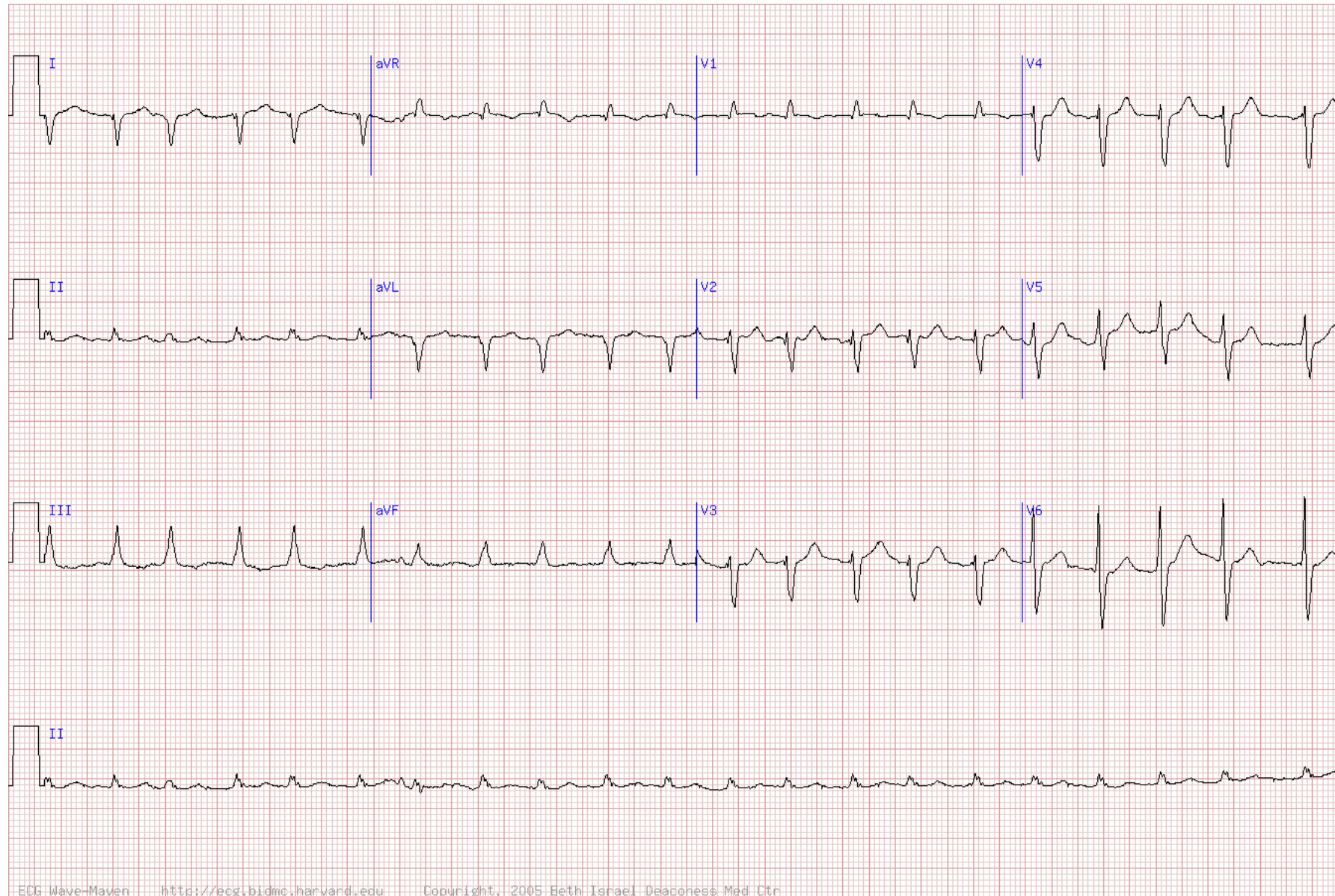
Case: 49 year old woman with rapid heartbeat

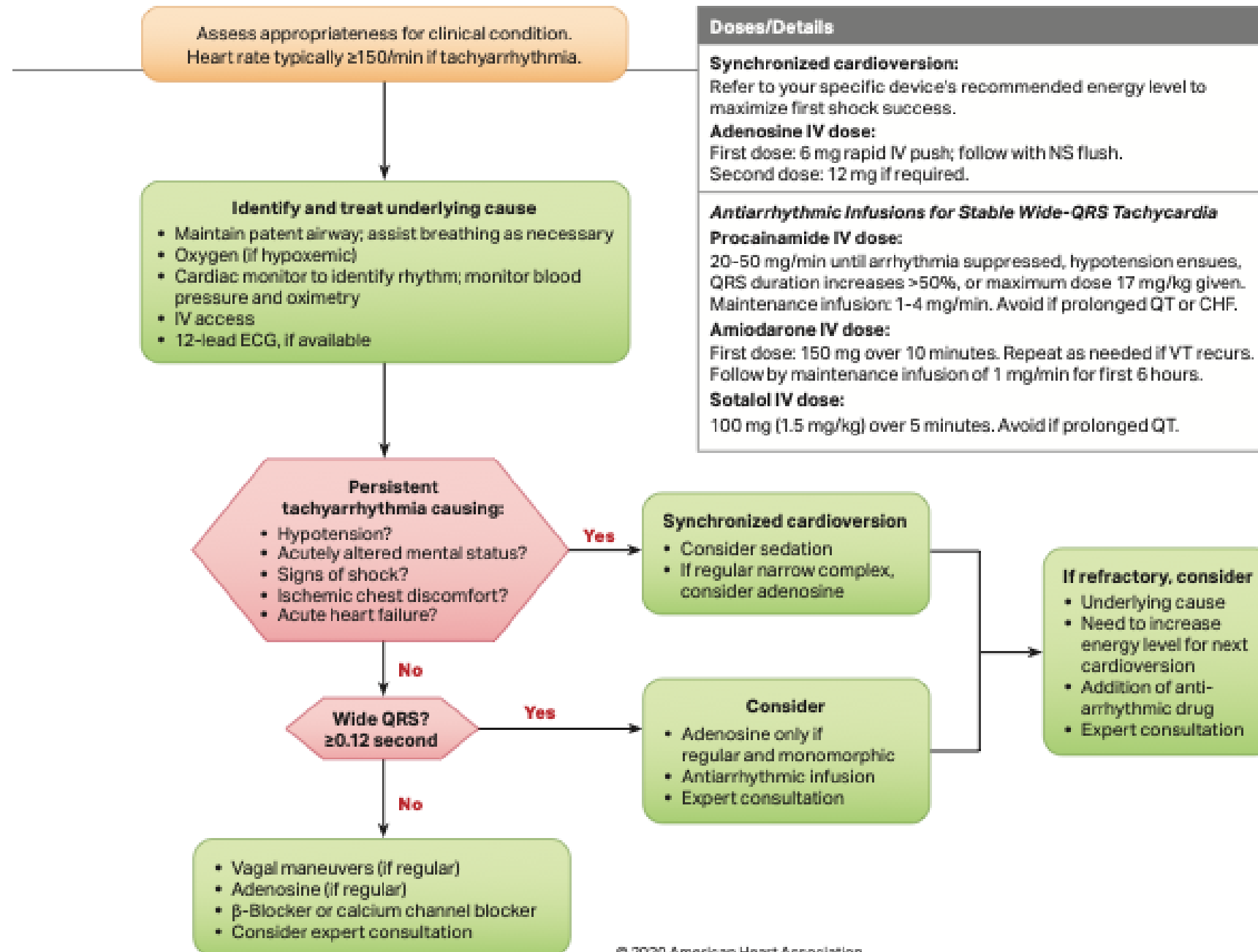




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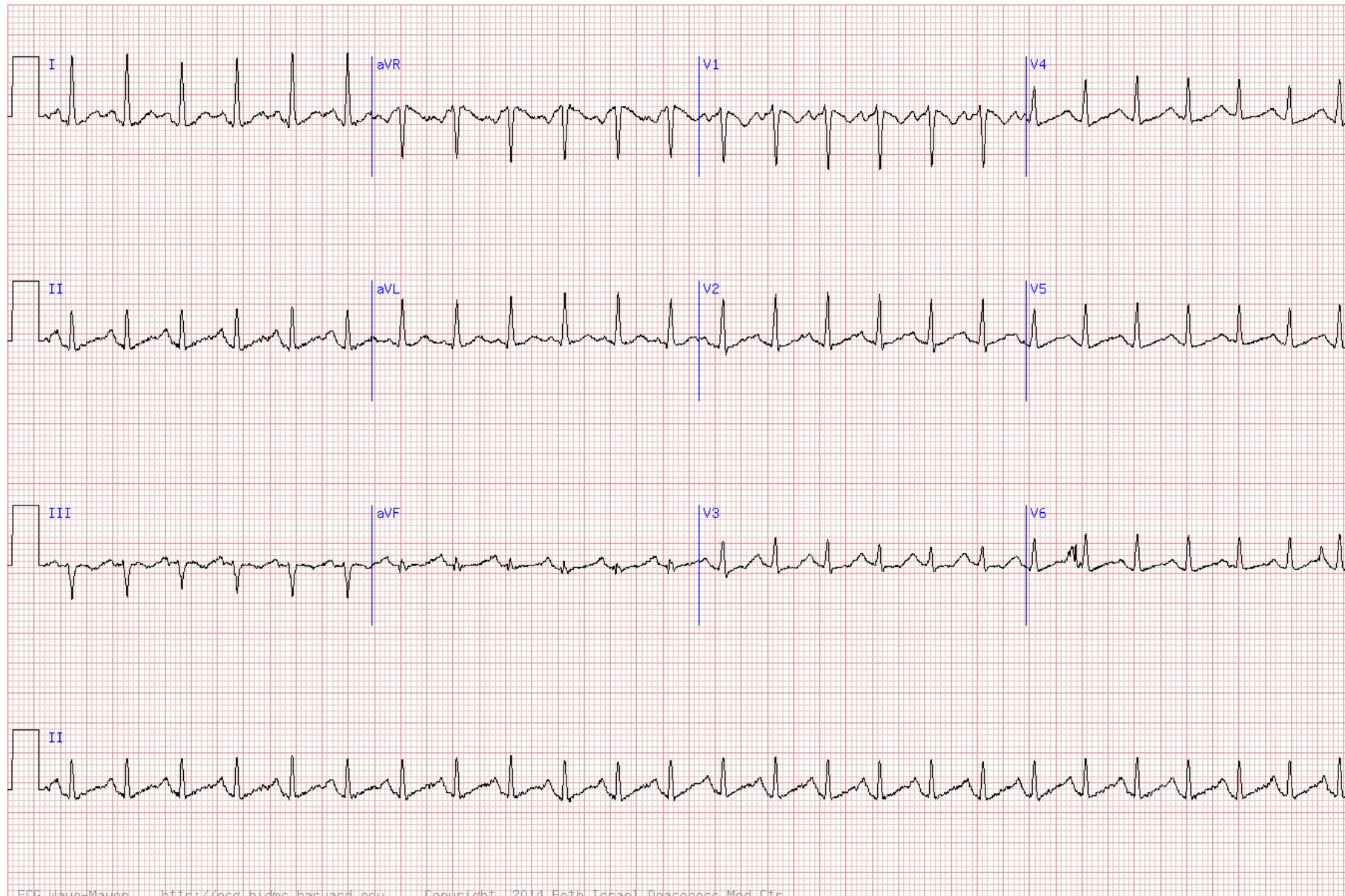
Case: 79 year old woman with shortness of breath





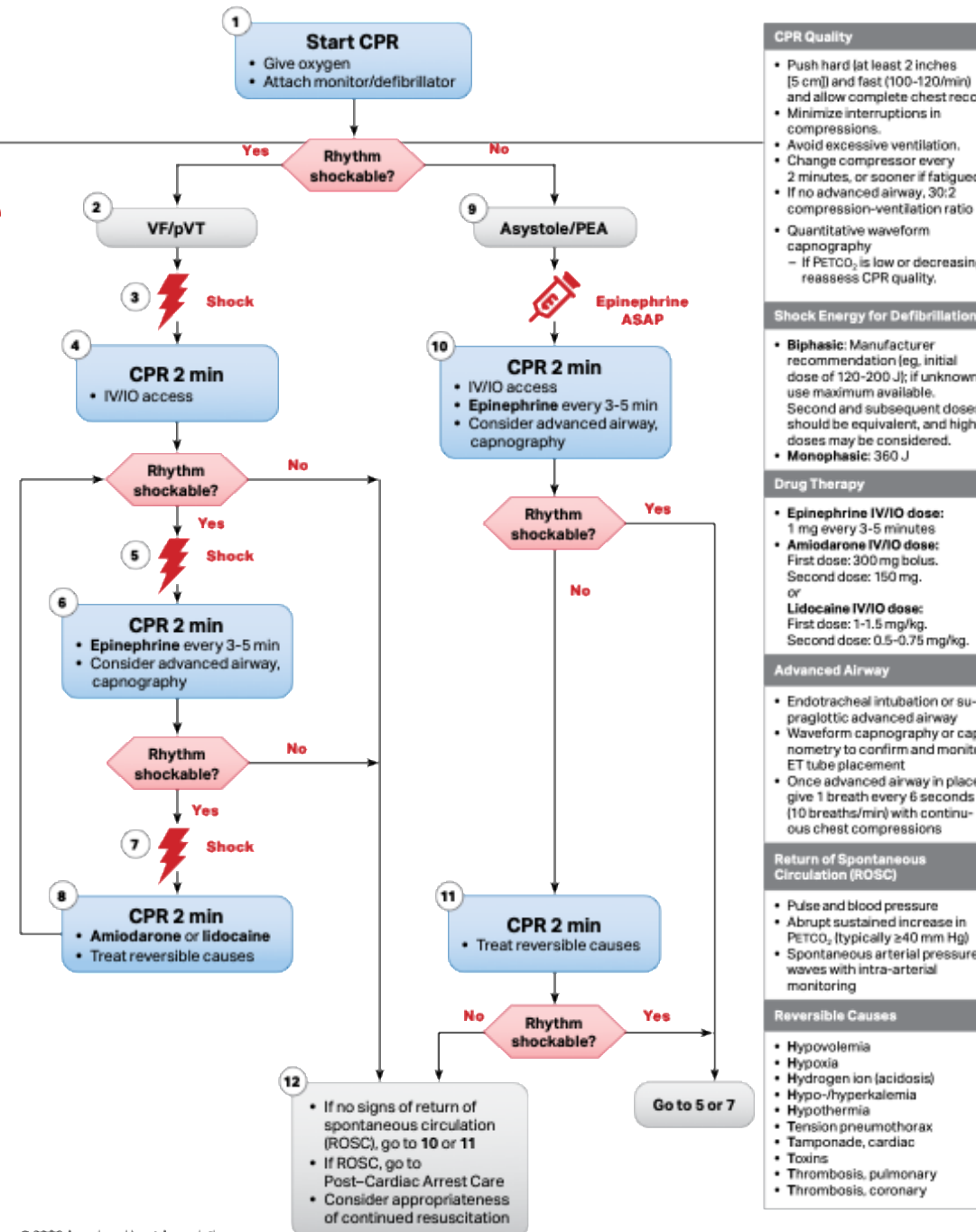
- Narrow or wide complex?
- Regular or irregular?
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Case: 30 year old man with cellulitis



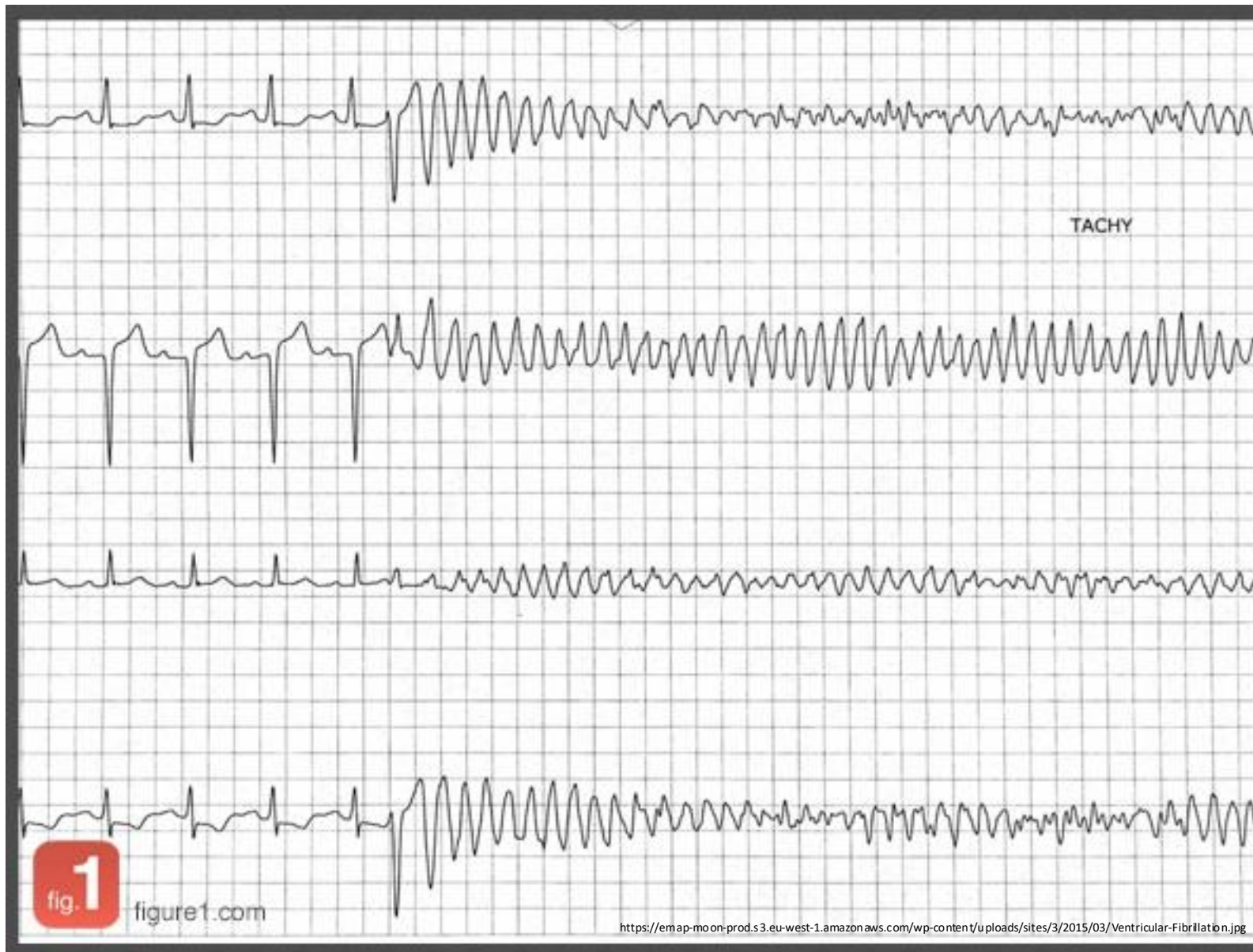


Patient without a pulse

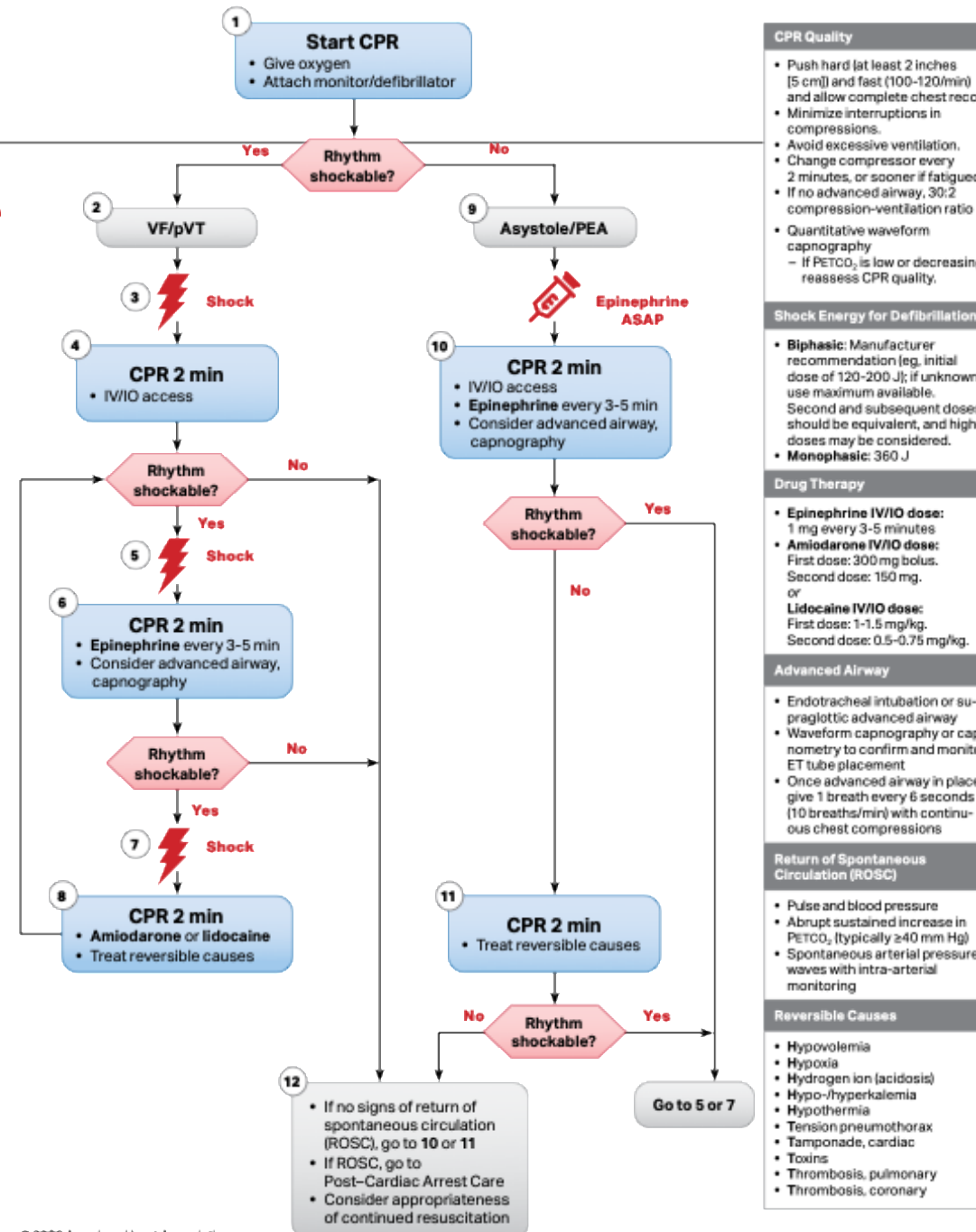


CPR Quality
- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil. - Minimize interruptions in compressions. - Avoid excessive ventilation. - Change compressor every 2 minutes, or sooner if fatigued. - If no advanced airway, 30:2 compression-ventilation ratio - Quantitative waveform capnography - If PETCO₂ is low or decreasing, reassess CPR quality.
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Biphasic: Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered. Monophasic: 360 J
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Reversible Causes
- Hypovolemia - Hypoxia - Hydrogen ion (acidosis) - Hypo-/hyperkalemia - Hypothermia - Tension pneumothorax - Tamponade, cardiac - Toxins - Thrombosis, pulmonary - Thrombosis, coronary

Case: 18 year old boy with history of syncope



Patient without a pulse



CPR Quality

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Change compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio
- Quantitative waveform capnography
 - If PETCO₂ is low or decreasing, reassess CPR quality.

Shock Energy for Defibrillation

- Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- Monophasic:** 360 J

Drug Therapy

- Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
- Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.
- Lidocaine IV/IO dose:** First dose: 1-1.5 mg/kg. Second dose: 0.5-0.75 mg/kg.

Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

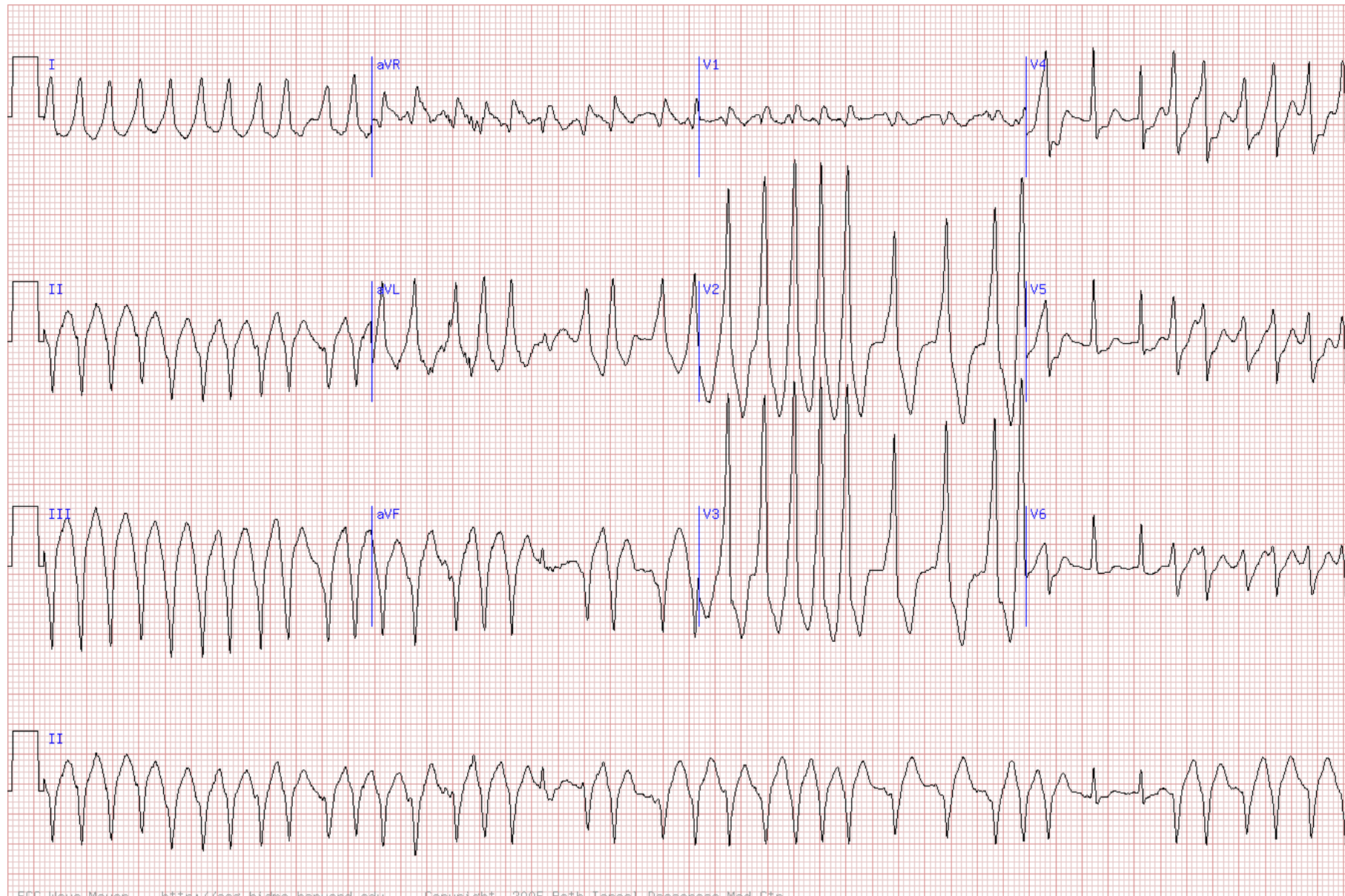
Return of Spontaneous Circulation (ROSC)

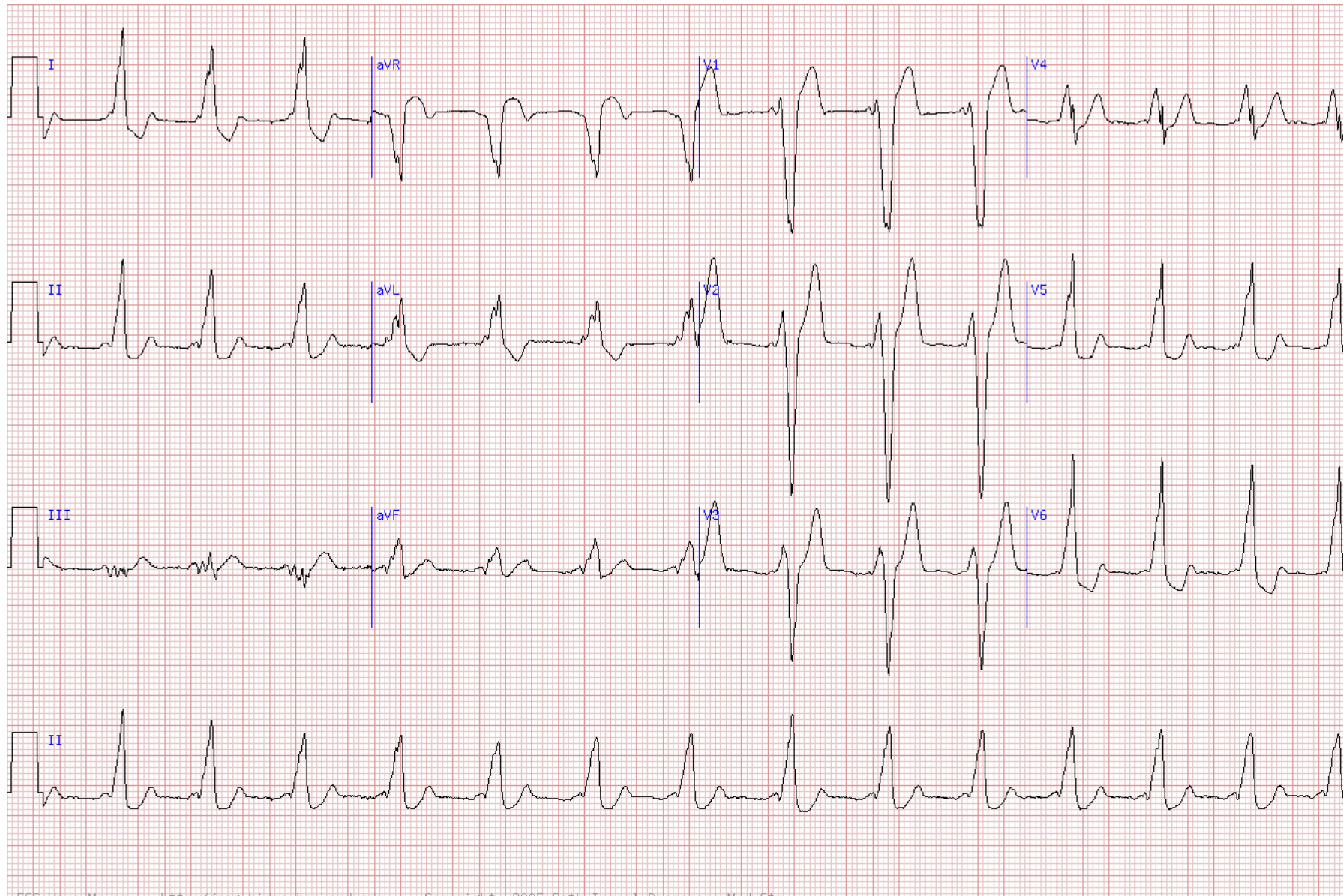
- Pulse and blood pressure
- Abrupt sustained increase in PETCO₂ (typically ≥40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

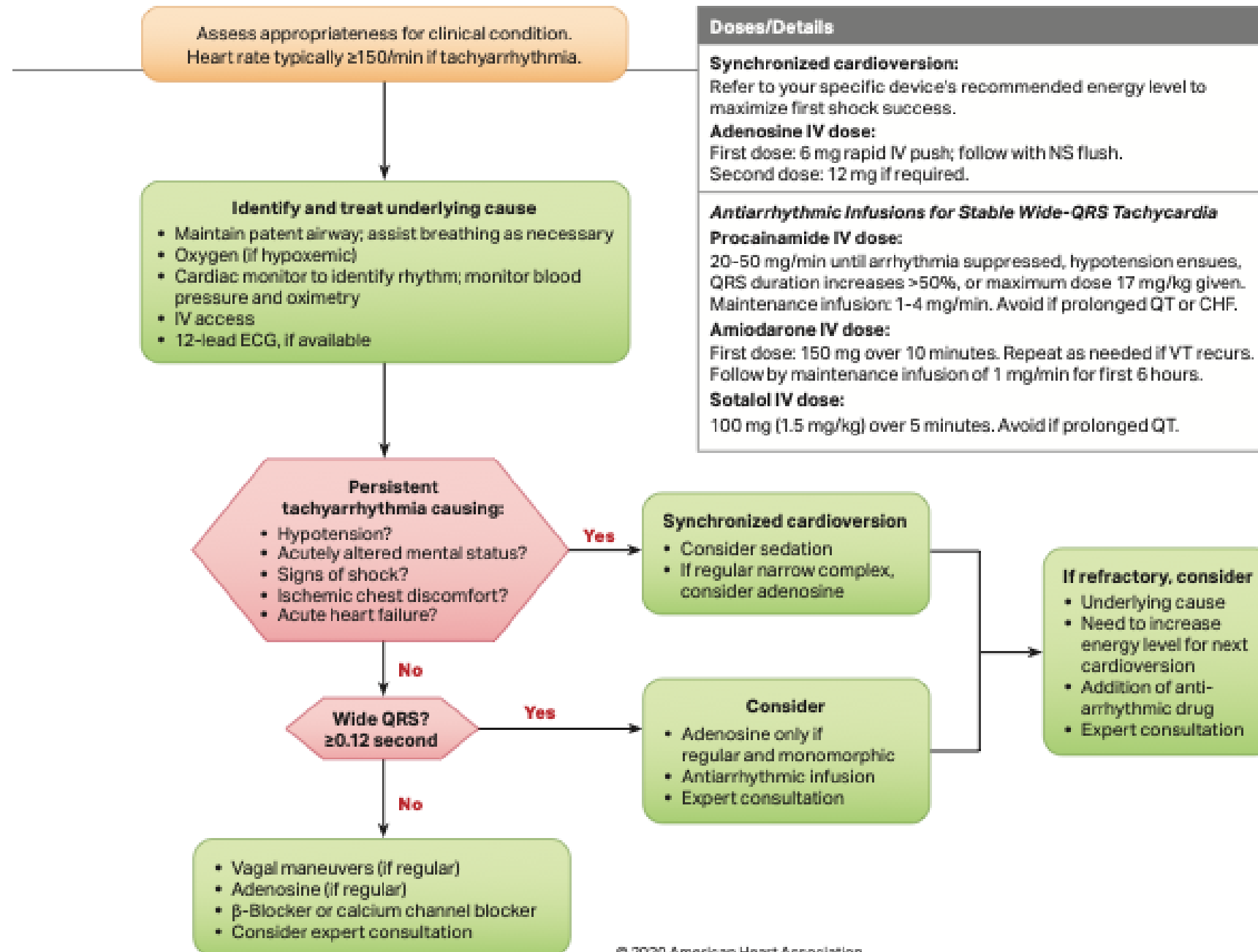
Reversible Causes

- Hypovolemia
- Hypoxia
- Hydrogen ion (acidosis)
- Hypo-/hyperkalemia
- Hypothermia
- Tension pneumothorax
- Tamponade, cardiac
- Toxins
- Thrombosis, pulmonary
- Thrombosis, coronary

Case: 59 year old woman with palpitations

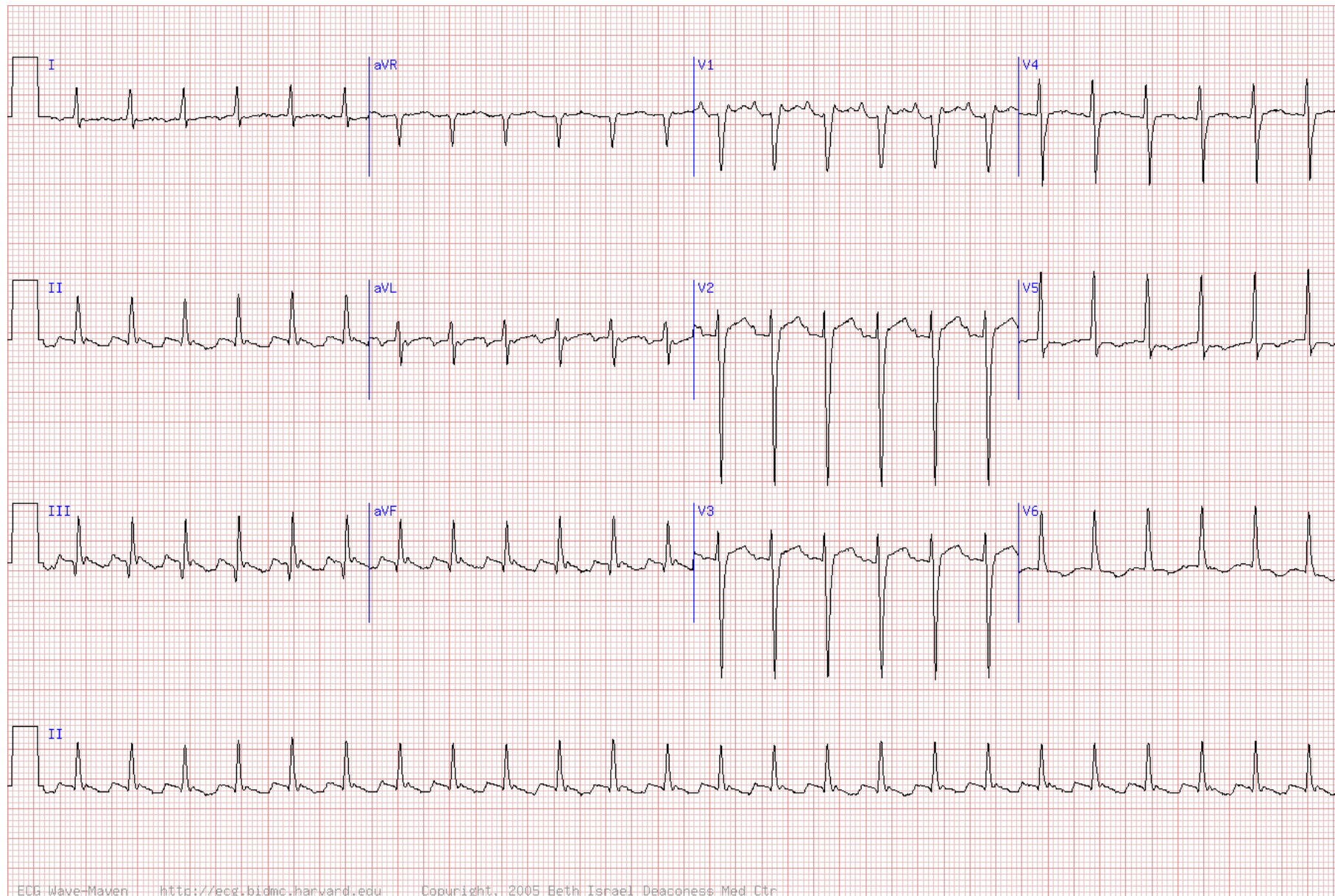




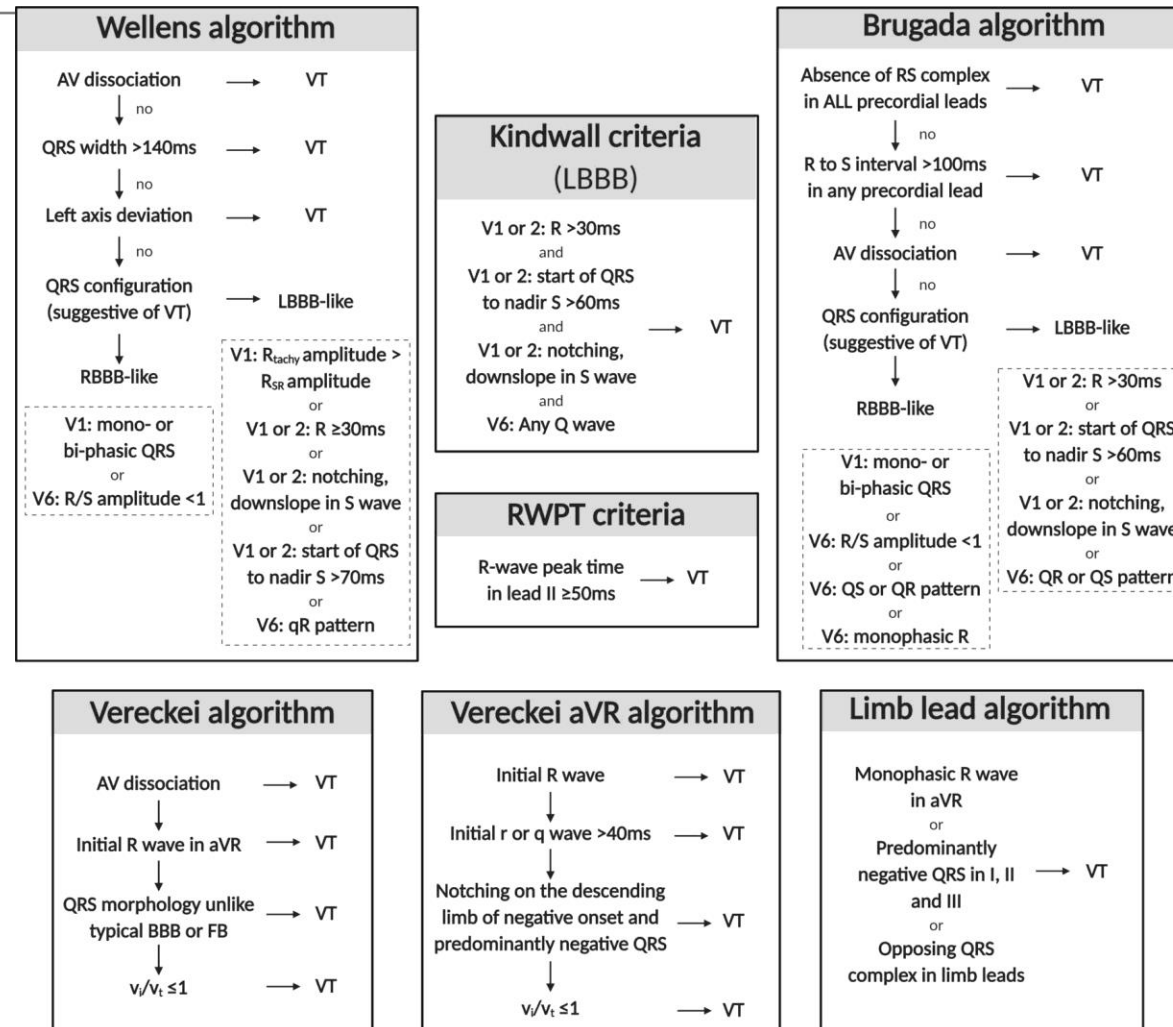


- Narrow or wide complex?
- Regular or irregular?
- Hemodynamics?
- What are the available management options?

Case: 60 year old woman with palpitations

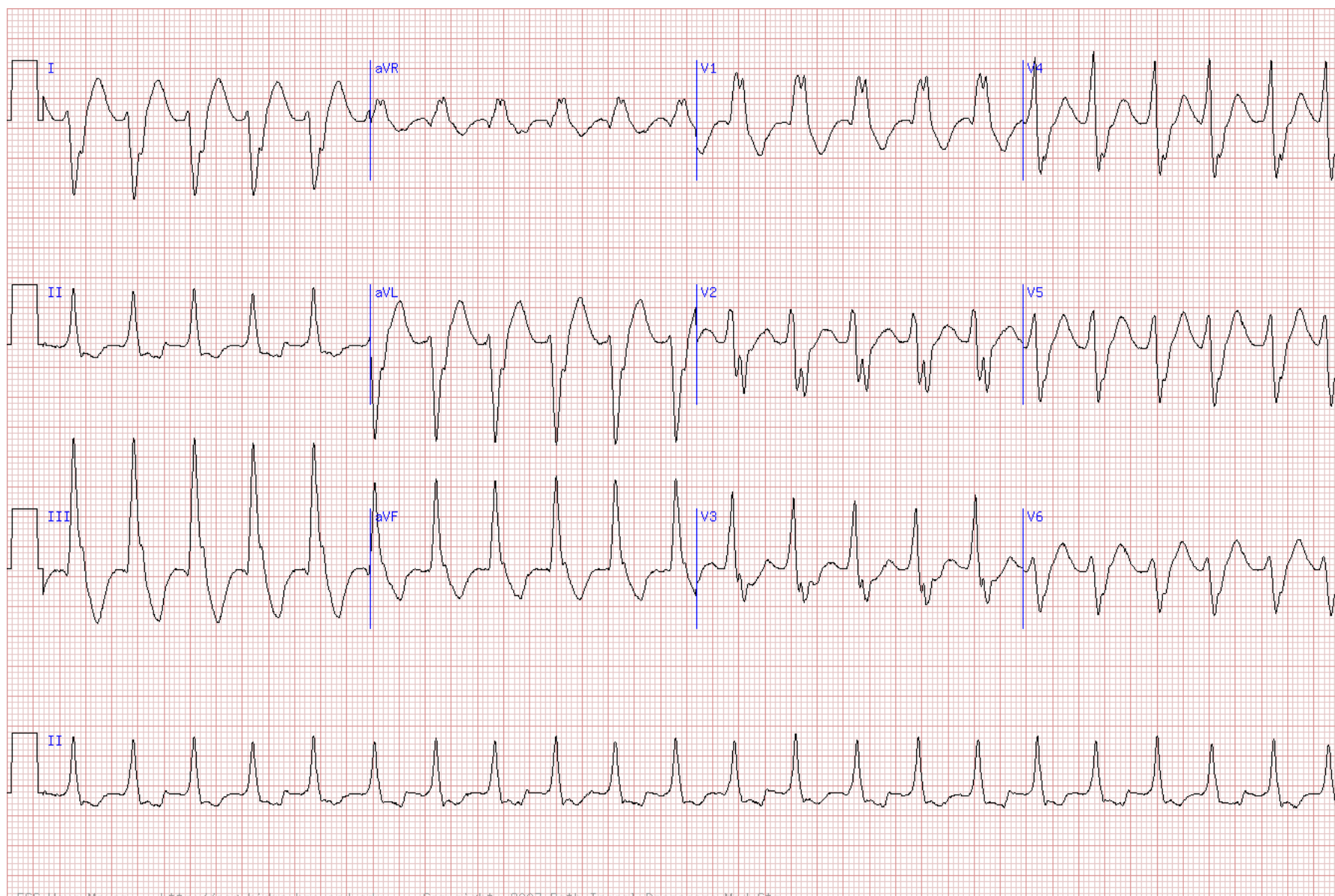


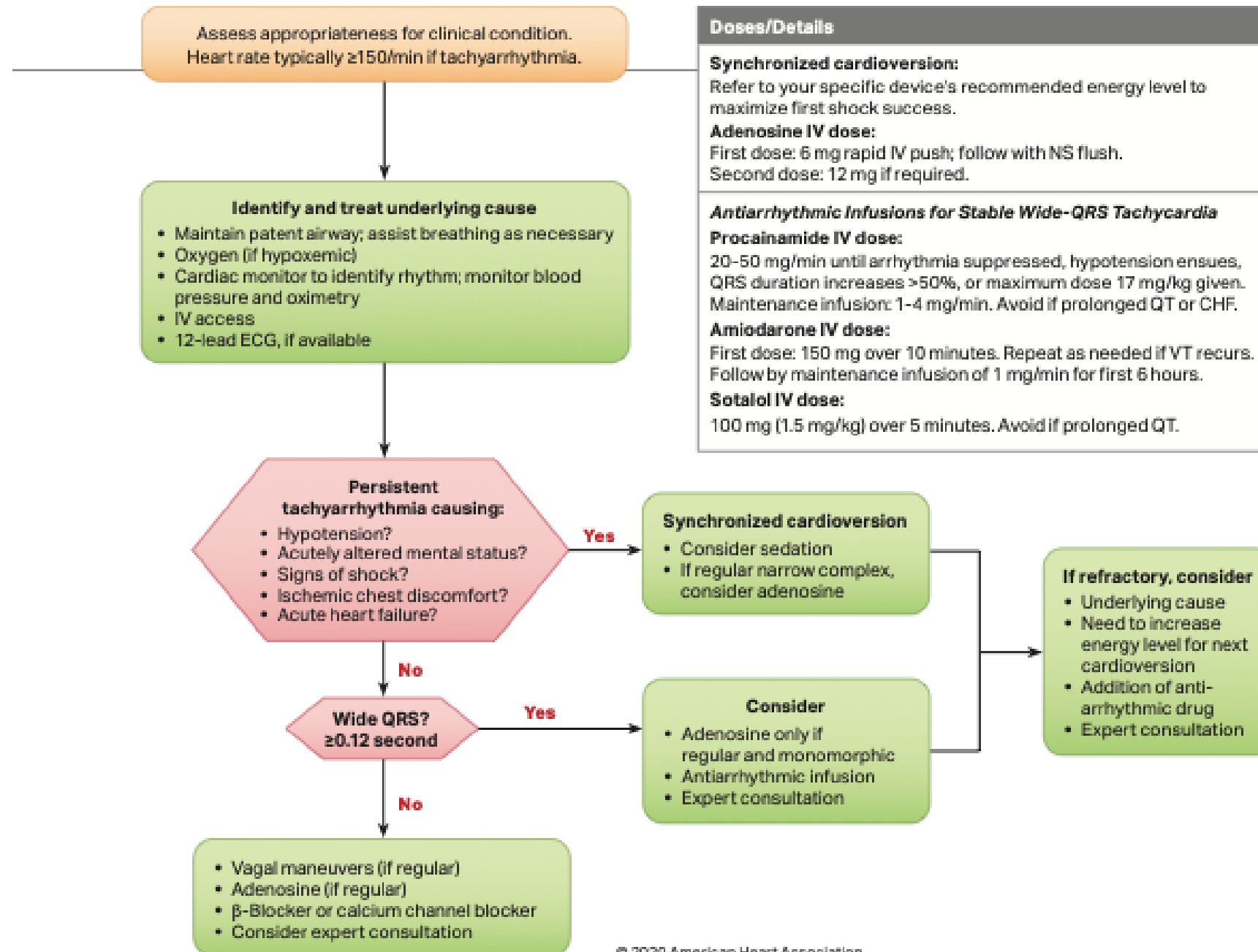
Wide complex tachycardia algorithms to distinguish between ventricular and supraventricular tachycardias.



Wern Yew Ding, and Saagar Mahida Heart 2021;107:1995-2003

Case: 45 year old man with ESRD





- Narrow or wide complex?
- Regular or irregular?
- Hemodynamics?
- What are the available management options?

Thank you for your attention
and do not forget to do the
survey!