Management & Monitoring of Bradyarrythmias

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- DIAGNOSIS → ECG
  CLINICAL
  ELECTROPHYSIOLOGY
- TREATMENT → DRUG
  PACING

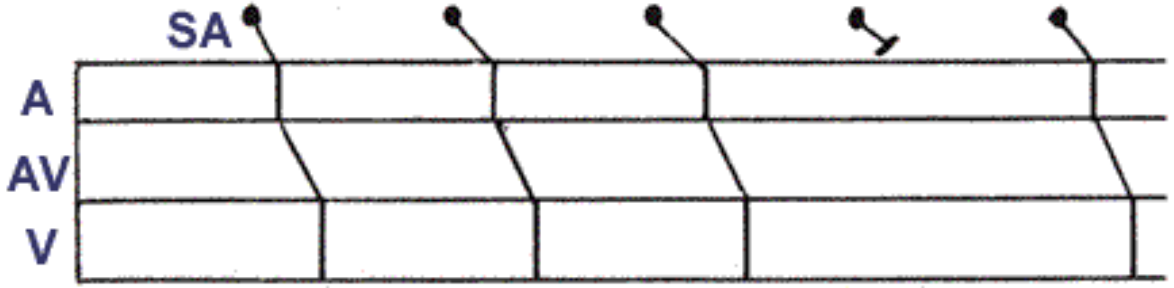
SINUS NODE DYSFUNCTION

Causes- Increased Vagal tone &/or Decreased Sympathetic tone

- Anatomic damage
- Drugs

TYPES

- SINUS BRADYCARDIA
- SINUS ARREST
- SINO-ATRIAL EXIT BLOCK
- BRADYCARDIA-TACHYCARDIA SYN.
- CHRONOTROPIC INCOMPETENCE



Sino-Atrial Exit Block (type I)

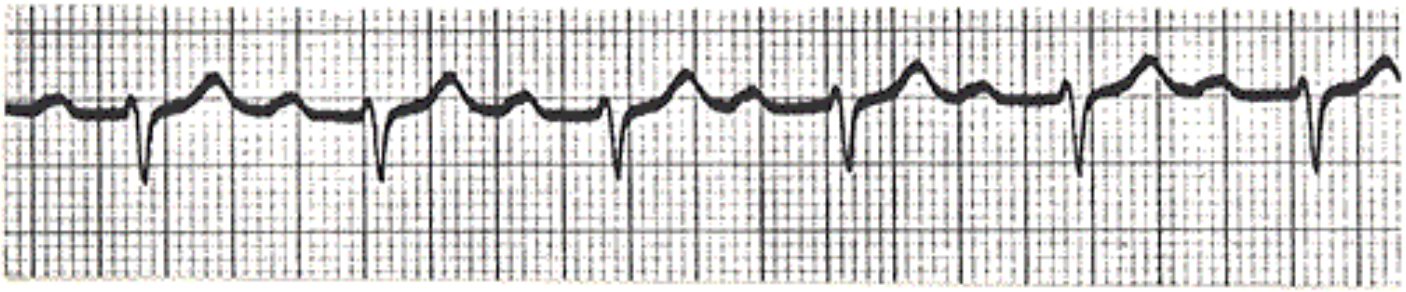
Sino-Atrial Exit Block (Type II)

Sinus Arrythmia

- Respiratory form
- Non-respiratory Form
- Ventriculophasic Sinus Arrythmia

AV NODAL DYSFUNCTION

- 1ST DEGREE AV BLOCK
- 2ND DEGREE AV BLOCK
  - MOBITZ Type I
  - MOBITZ Type II
- 3RD DEGREE AV BLOCK

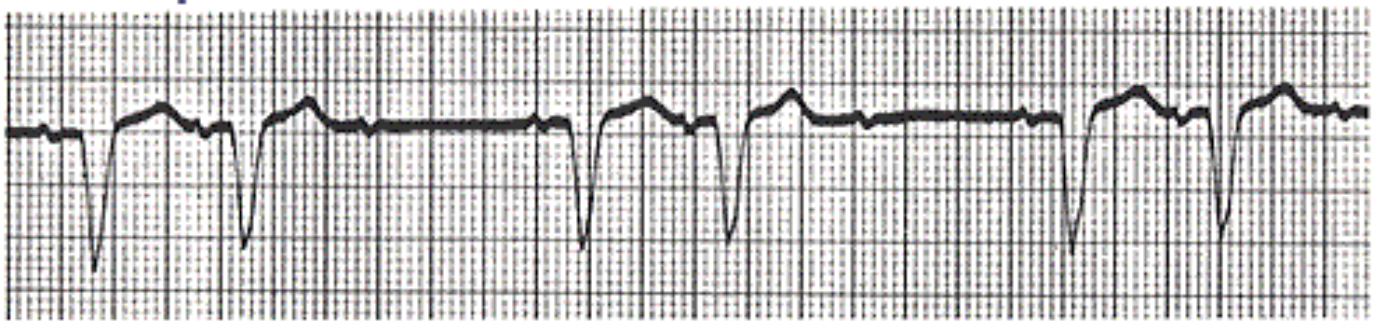


1st degree AV block (PR = 280 ms)

Lead V_1 "Classic Wenckebach"

680 640 1180 680

Lead V_1

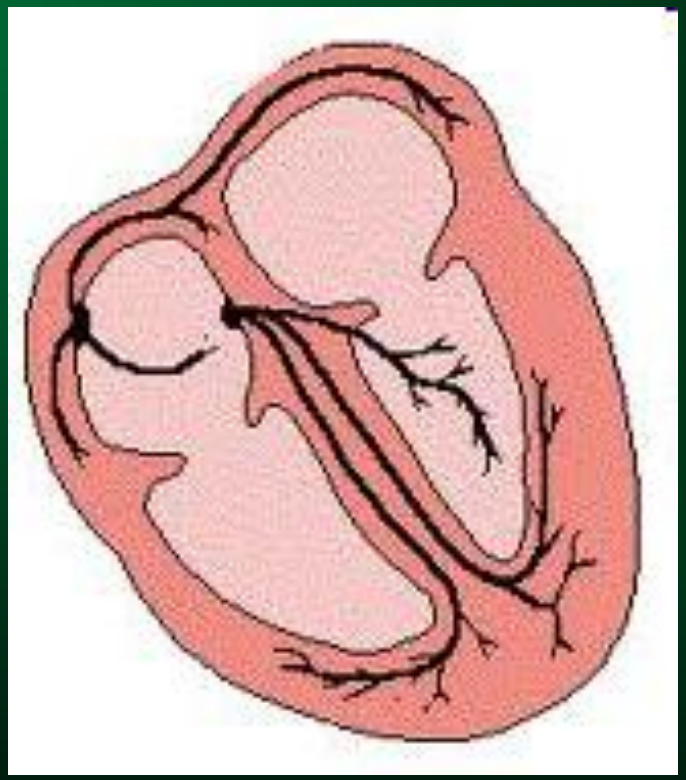


2nd degree AV block (type II) with LBBB

Neurocardiogenic syncopes

- Carotid Hypersensitivity Syncopes
  - 3 types- Cardio-inhibitory
  - Vasodepressor
  - Combined
- Vasovagal Attacks

Bundle Branch Blocks



ELECTROPHYSIOLOGY

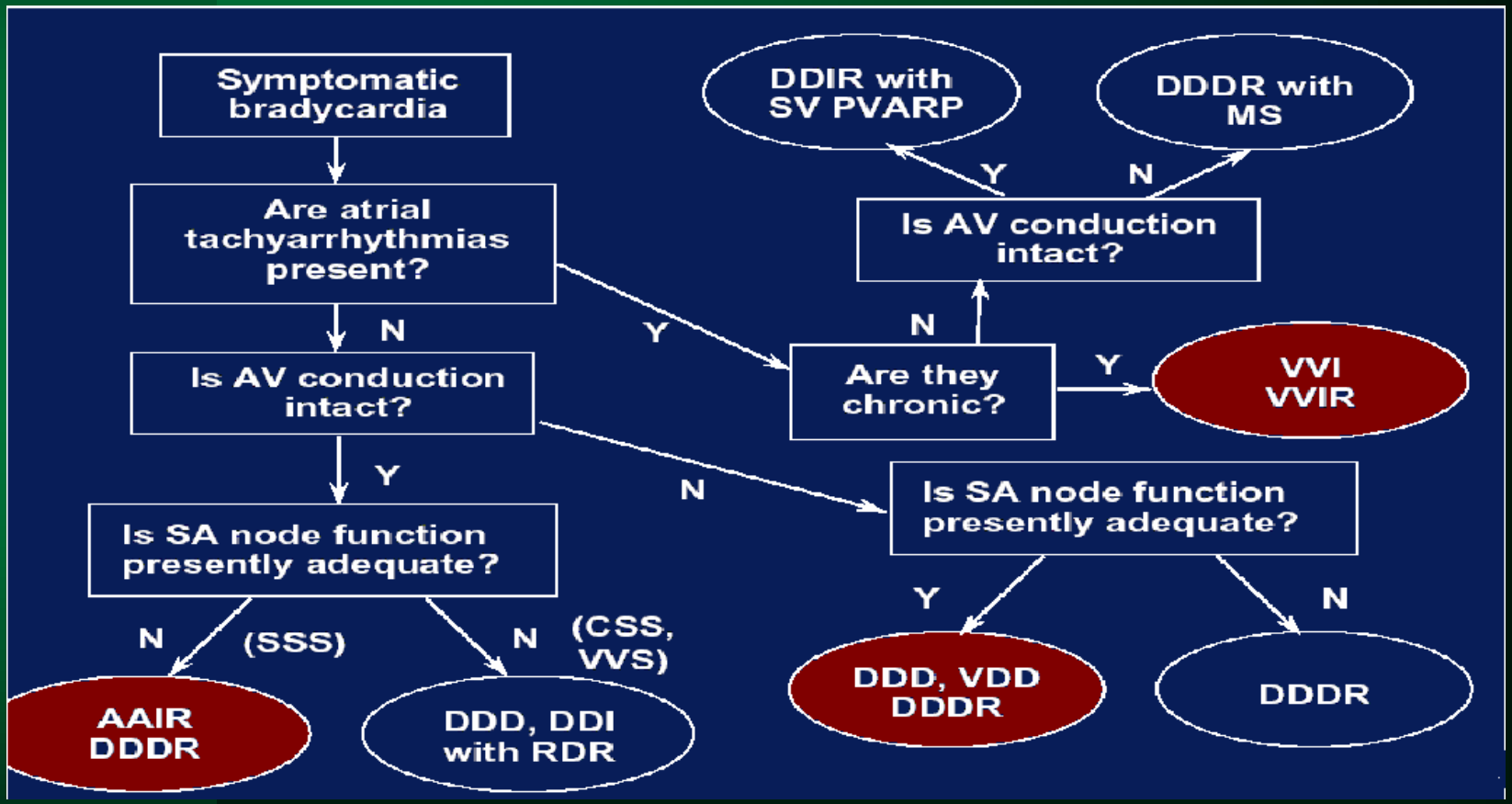
- Multipolar catheter electrode
- DIAGNOSIS of Bradyarrythmias
  - SA nodal dysfunction
    - -SNRT
    - -Secondary Pauses
    - - SACT
  - AV nodal dysfunction
- Other indications
- Disadvantages

TREATMENT

- DRUGS
- Pacemakers - When to pace?

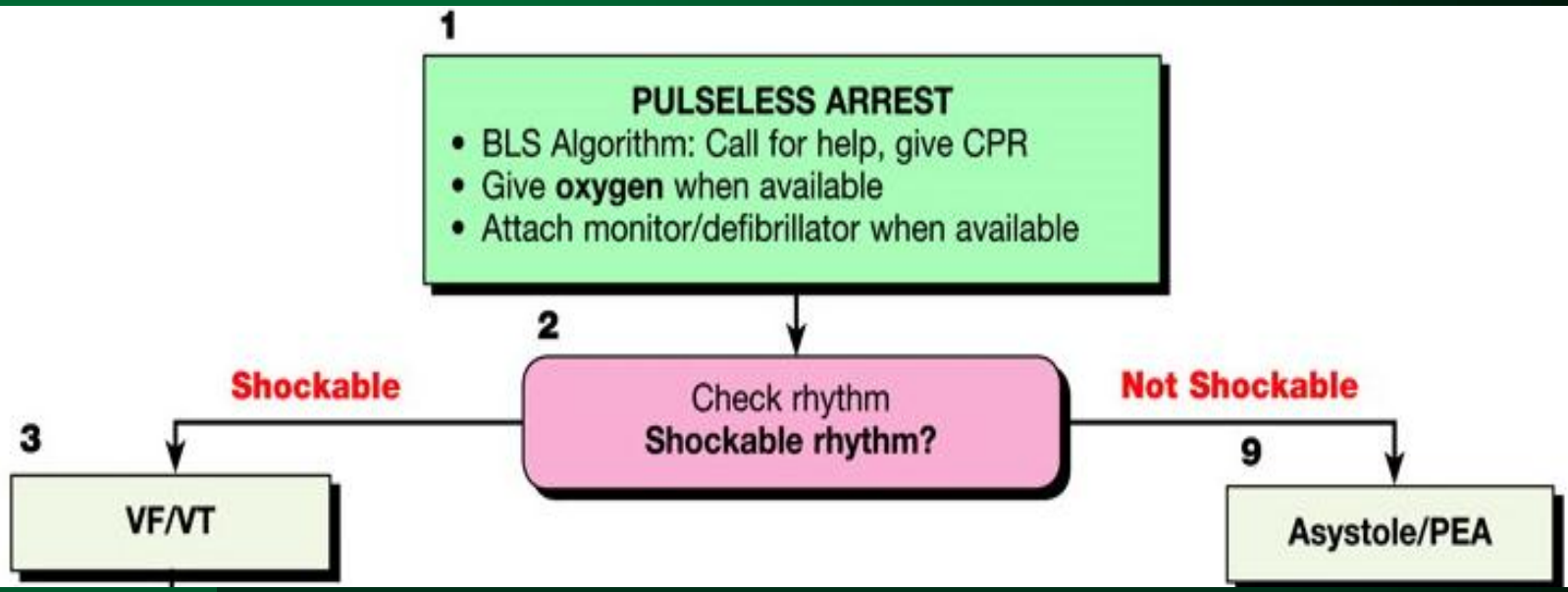
PACEMAKERS

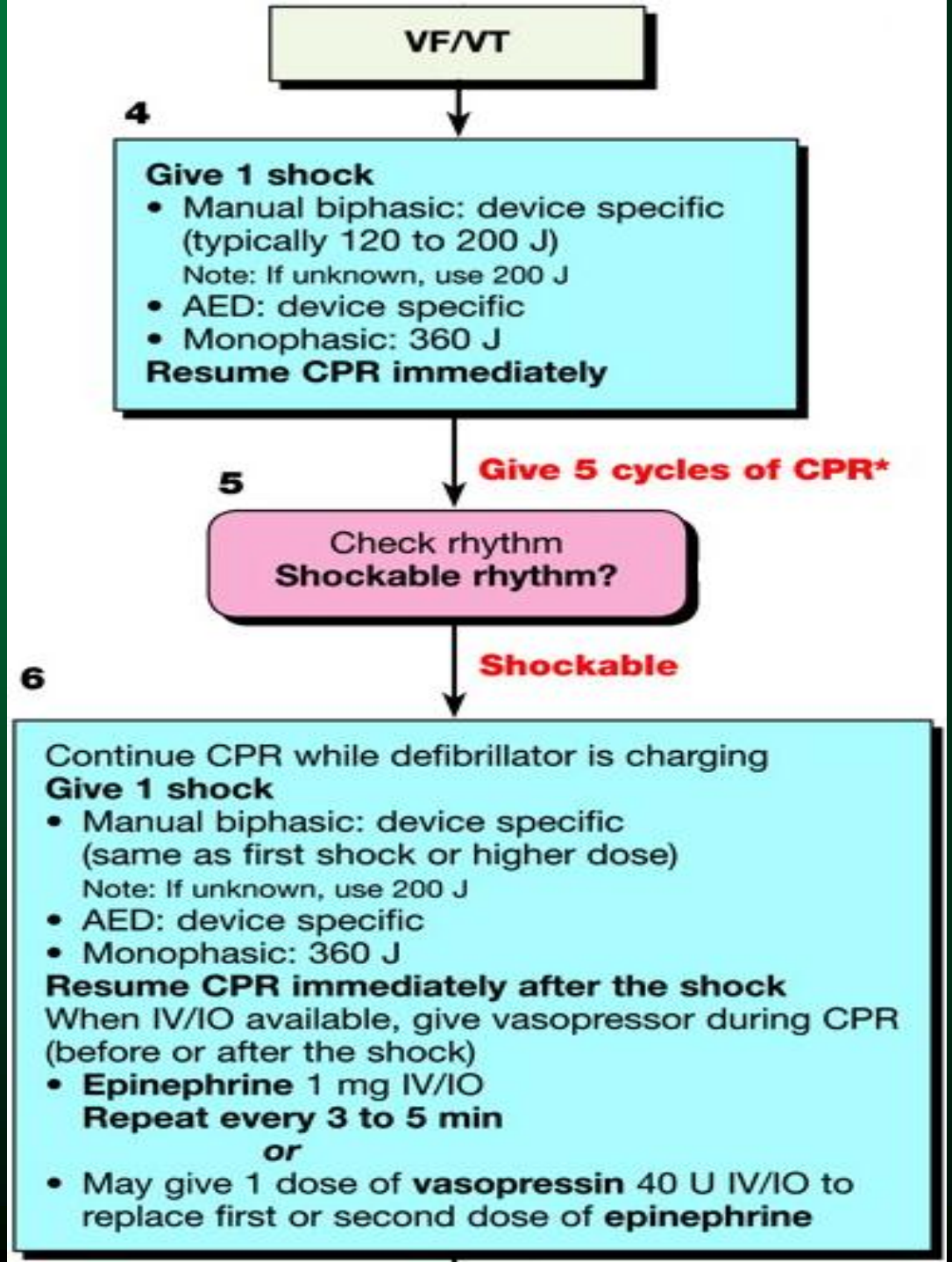
I Chamber Paced	II Chamber Sensed	III Response to Sensing	IV Programmable Functions/Rate Modulation	V Antitachy Function(s)
V: Ventricle	V: Ventricle	T: Triggered	P: Simple programmable	P: Pace
A: Atrium	A: Atrium	I: Inhibited	M: Multi-programmable	S: Shock
D: Dual (A+V)	D: Dual (A+V)	D: Dual (T+I)	C: Communicating	D: Dual (P+S)
O: None	O: None	O: None	R: Rate modulating	O: None
S: Single (A or V)	S: Single (A or V)		O: None	

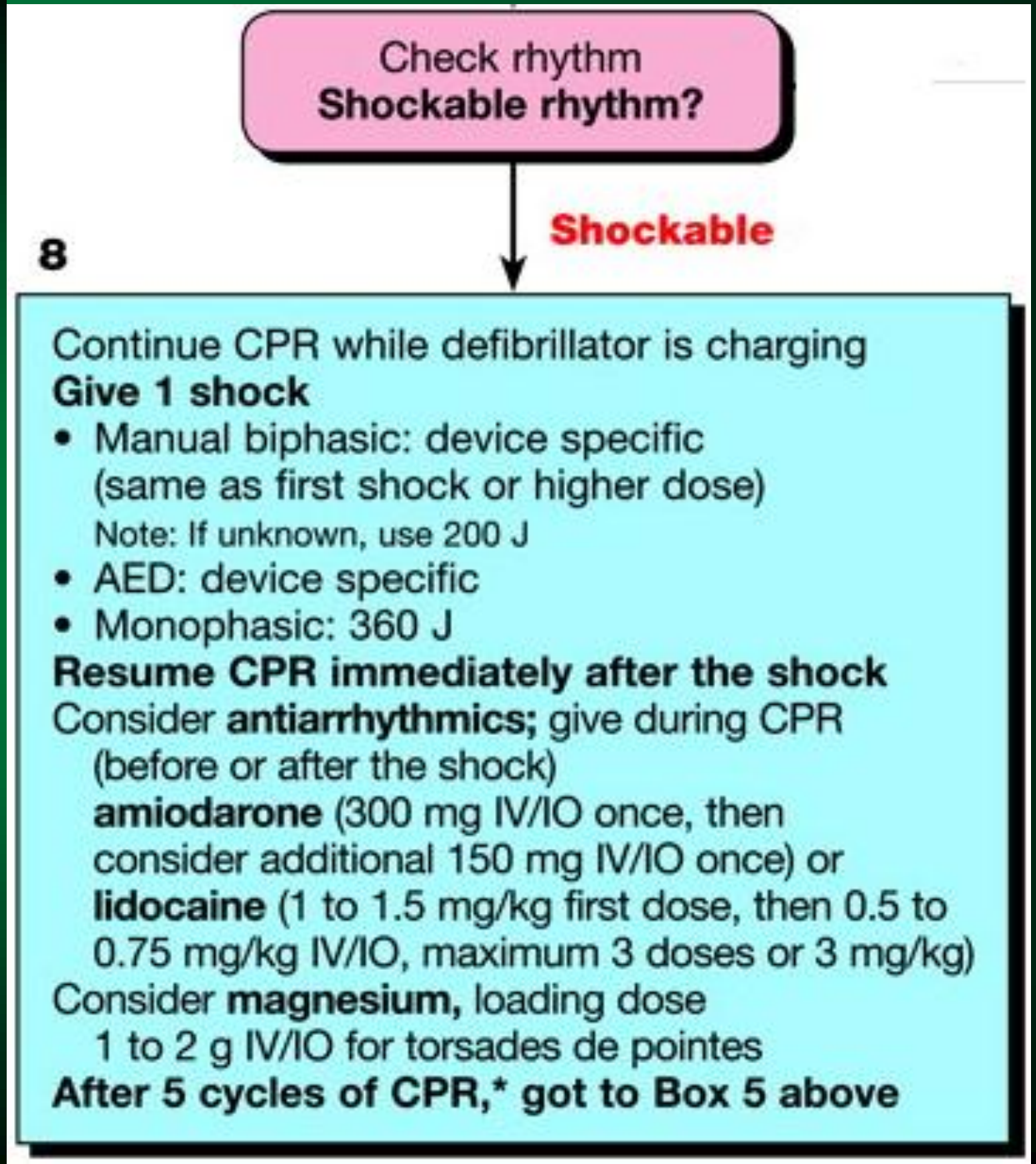

Symptomatic bradycardia
Are atrial tachyarrhythmias present?
Y
N
Is AV conduction intact?
Y
N
Is SA node function presently adequate?
Y
N
(SSS)
N
(CSS, VVS)
AAIR DDDR
DDD, DDI with RDR
Are they chronic?
Y
N
VVI VVIR
Is AV conduction intact?
Y
N
DDIR with SV PVARP
DDDR with MS
Is SA node function presently adequate?
Y
N
DDD, VDD DDDR
DDDR

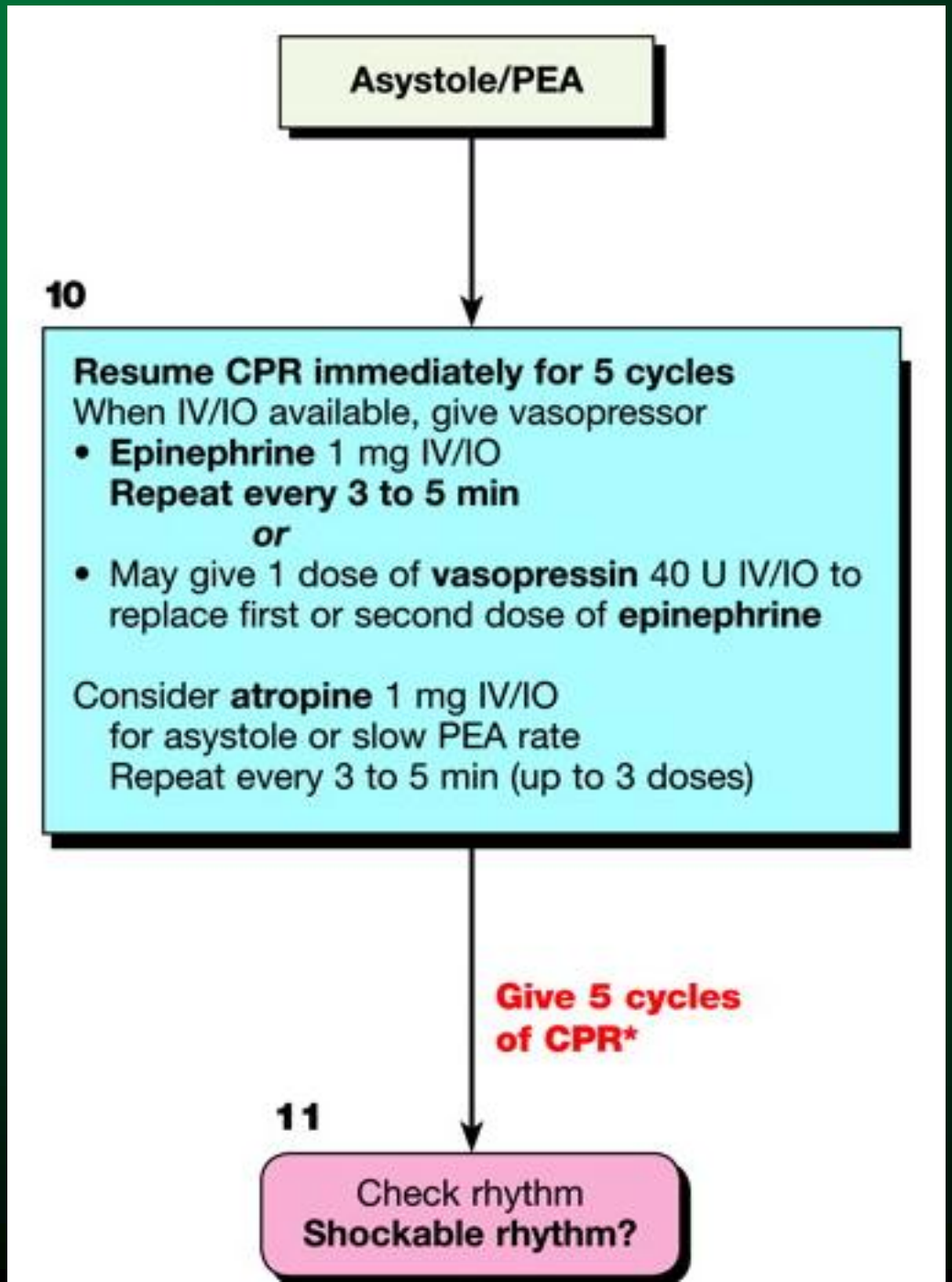
- Pacemaker Syndrome
- Pacemaker Re-entrant Tachycardia
- Complications- Local
  - Lead Complications
    - Dislodgement
    - Perforation
    - Lead Fracture
    - Insulation Break
  - Circuit Failure
    - Pacing Failure
    - Sensing Failure

CARDIAC ARREST




VF/VT
4
Give 1 shock
• Manual biphasic: device specific (typically 120 to 200 J)
Note: If unknown, use 200 J
• AED: device specific
• Monophasic: 360 J
Resume CPR immediately
Give 5 cycles of CPR*
5
Check rhythm
Shockable rhythm?
Shockable
6
Continue CPR while defibrillator is charging
Give 1 shock
• Manual biphasic: device specific (same as first shock or higher dose)
Note: If unknown, use 200 J
• AED: device specific
• Monophasic: 360 J
Resume CPR immediately after the shock
When IV/IO available, give vasopressor during CPR (before or after the shock)
• Epinephrine 1 mg IV/IO
Repeat every 3 to 5 min
or
• May give 1 dose of vasopressin 40 U IV/IO to replace first or second dose of epinephrine


Check rhythm
Shockable rhythm?
Shockable
8
Continue CPR while defibrillator is charging
Give 1 shock
• Manual biphasic: device specific (same as first shock or higher dose)
Note: If unknown, use 200 J
• AED: device specific
• Monophasic: 360 J
Resume CPR immediately after the shock
Consider antiarrhythmics; give during CPR (before or after the shock)
amiodarone (300 mg IV/IO once, then consider additional 150 mg IV/IO once) or
lidocaine (1 to 1.5 mg/kg first dose, then 0.5 to 0.75 mg/kg IV/IO, maximum 3 doses or 3 mg/kg)
Consider magnesium, loading dose
1 to 2 g IV/IO for torsades de pointes
After 5 cycles of CPR,* got to Box 5 above


Asystole/PEA
10
Resume CPR immediately for 5 cycles
When IV/IO available, give vasopressor
• Epinephrine 1 mg IV/IO
Repeat every 3 to 5 min
or
• May give 1 dose of vasopressin 40 U IV/IO to replace first or second dose of epinephrine
Consider atropine 1 mg IV/IO
for asystole or slow PEA rate
Repeat every 3 to 5 min (up to 3 doses)
Give 5 cycles of CPR*
11
Check rhythm
Shockable rhythm?

During CPR

- **Push hard and fast (100/min)**
- **Ensure full chest recoil**
- **Minimize interruptions in chest compressions**
- One cycle of CPR: 30 compressions then 2 breaths; 5 cycles ≈2 min
- Avoid hyperventilation
- Secure airway and confirm placement

* After an advanced airway is placed, rescuers no longer deliver "cycles" of CPR. Give continous chest compressions without pauses for breaths. Give 8 to 10 breaths/minute. Check rhythm every 2 minutes

- Rotate compressors every 2 minutes with rhythm checks
- Search for and treat possible contributing factors:
  - **H**ypovolemia
  - **H**ypoxia
  - **H**ydrogen ion (acidosis)
  - **H**ypo-/hyperkalemia
  - **H**ypoglycemia
  - **H**ypothermia
  - **T**oxins
  - **T**amponade, cardiac
  - **T**ension pneumothorax
  - **T**hrombosis (coronary or pulmonary)
  - **T**rauma

……. *Thank You*