

Bradycardia

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Goals

- students can define bradycardia and potential associated risks
- students understand basic principles and methods of bradycardia treatment

Basic principles

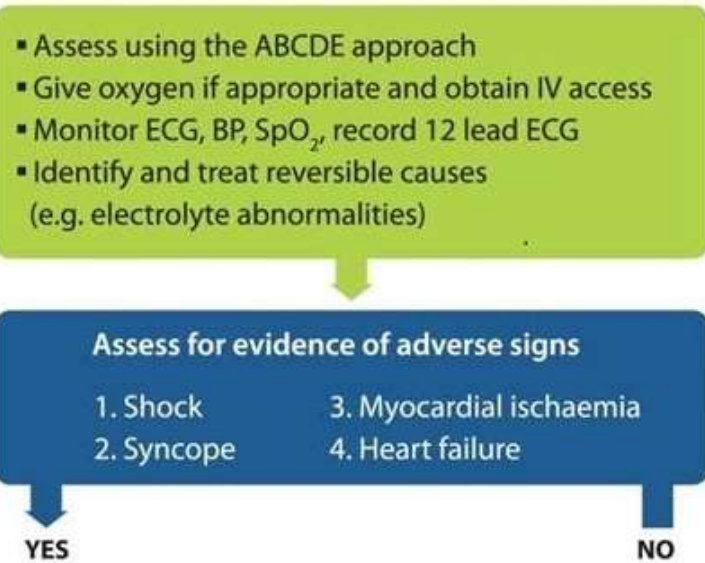
$$\text{CO} = \text{HR} \times \text{SV}$$

- low HR = low CO
- HR below 60/min is **bradycardia**
- bradycardia may result in:
 - **haemodynamically stable patient**
 - **haemodynamically unstable patient**
 - **cardiac arrest → CPR**

Bradycardia causes

- slow pacing by **sinoatrial** node
- **atrioventricular** blocks
 - 1st degree (PR interval >200 msec)
 - 2nd degree Mobitz I (progressive PR prolongation with dropped beat)
 - 2nd degree Mobitz II (repeated dropped beats, no change in PR interval)
 - 3rd degree (complete block between atria and ventricles)

Bradycardia Algorithm

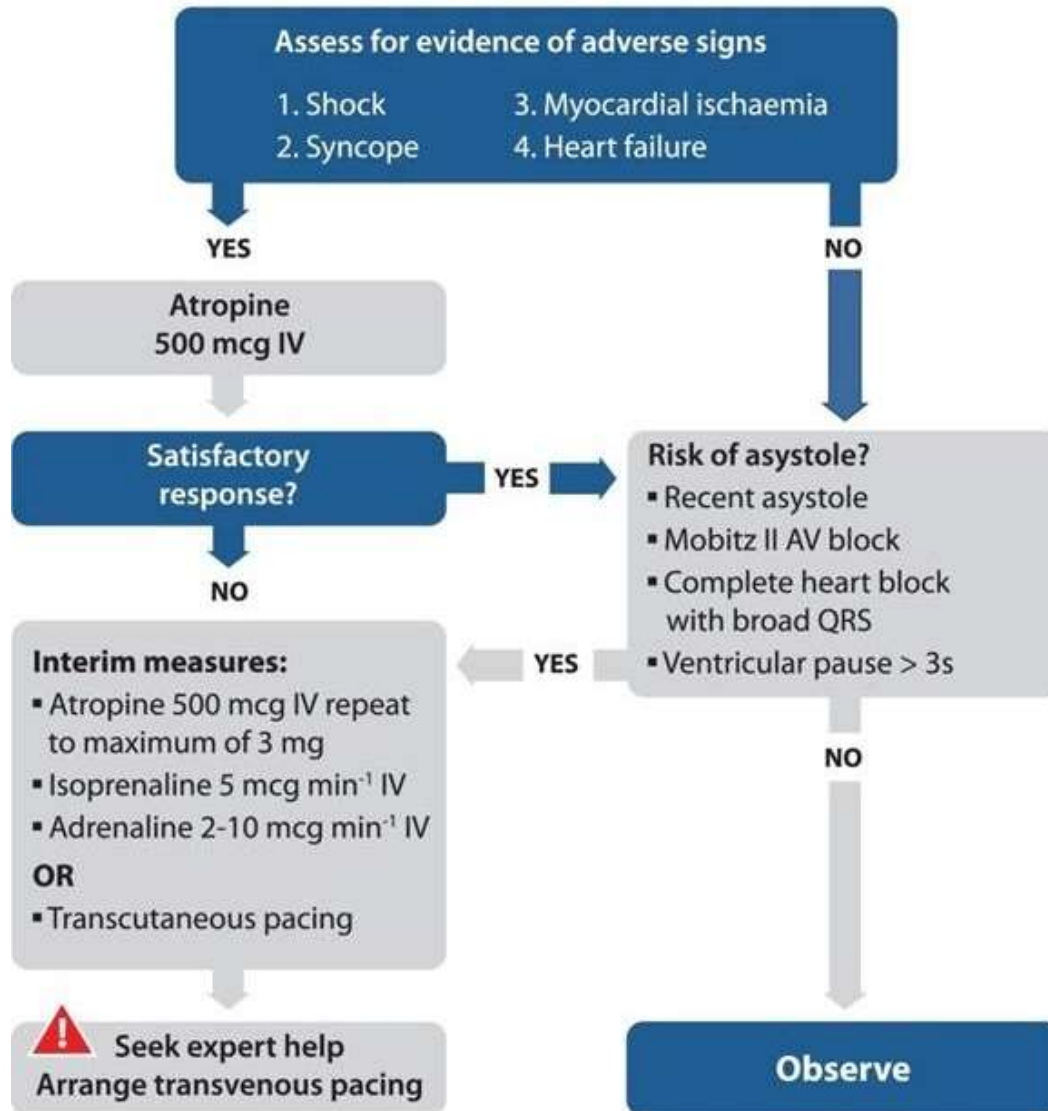


Airways
Breathing
Circulation
Disability
ECG, Electrolytes &
„Everything Else“

REMEMBER!

Haemodynamic (un)stability of the patient determines urgency and modes of treatment in all arrhythmias

Bradycardia Algorithm



Atropine

- parasympatholytic
- no effect of dose > 3mg
- avoid doses < 0.5 mg, risk of worse bradycardia
- alternative: **Glycopyrrolate**

Isoprenaline, Adrenaline

- sympathomimetics
- alternatives: **Dopamine, Dobutamine**

Alternative drugs:

- **Aminophylline**
- **Glucagon** (in BB or CCB toxicity)

Pacing

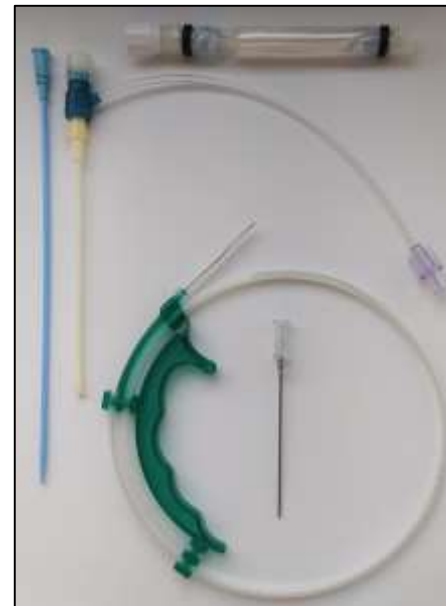
TRANSCUTANEOUS

- adhesive pads
- antero-lateral (typically) or antero-posterior position
- extremely uncomfortable, **(analgo)sedation required**
- „buys time“



TRANSVENOUS

- central venous sheath
- endocardial stimulation electrode



Take home message

- bradycardia is defined as HR below 60/min
- treatment options involve pharmacotherapy (parasympatholytics, sympathomimetics) and electrotherapy (pacing)
- haemodynamic (un)stability of the patient determines urgency and modes of treatment in all arrhythmias
- European Resuscitation Council Guidelines:
„Executive summary“ 2021 and 2015

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