Tachykardie / bradykardie

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General:

- ABCDE approach
- look for adverse signs (shock, syncopa, heart failure, chest pain ...)

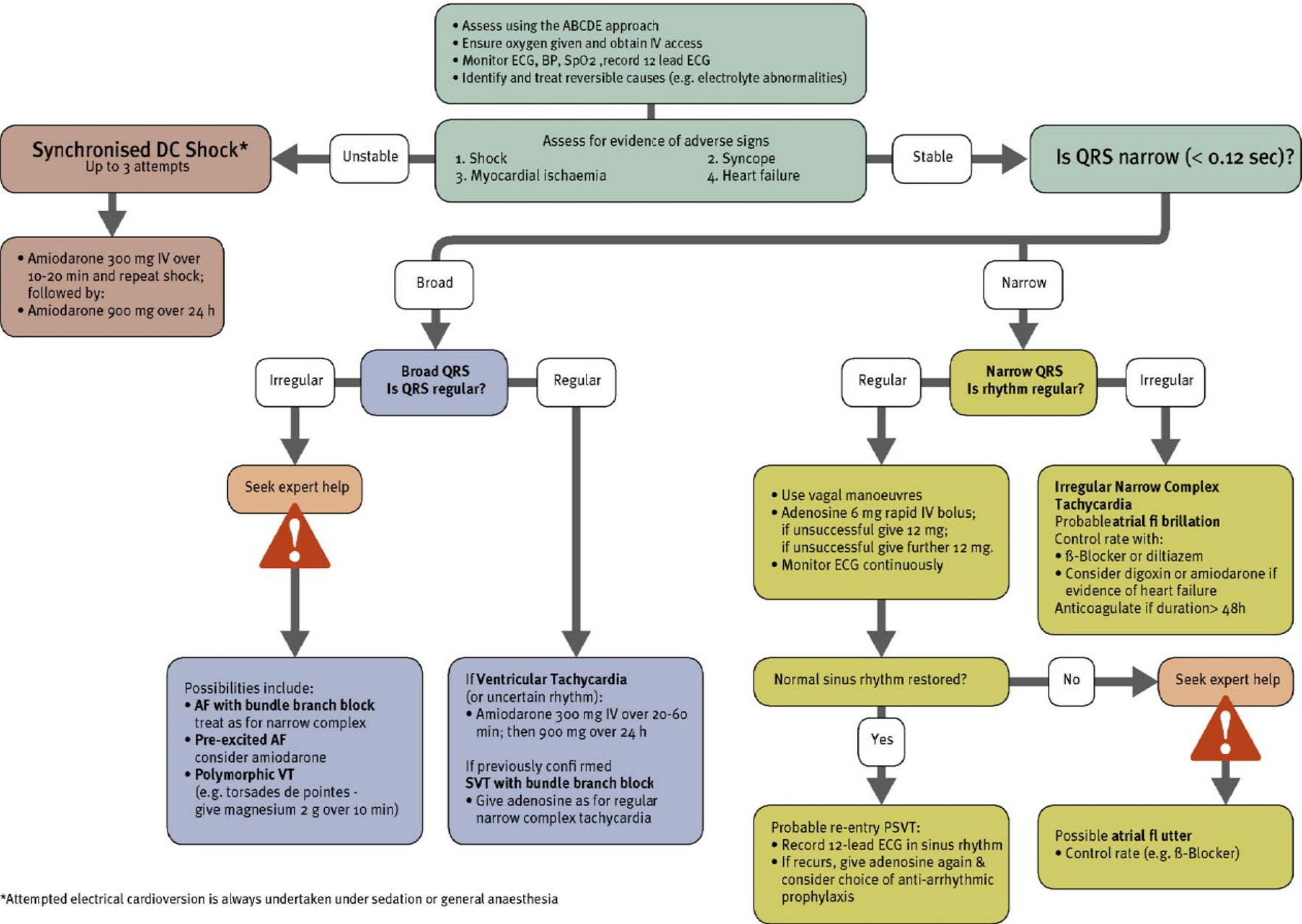
A+B: administration of high flow O2; auscultate, SpO2

C:puls + CRT, monitoring (ECG, blood pressure), 12-lead ECG; obtaining intravenous access

D:

E: Correct any electrolyte abnormalities (K+, Mg2+, Ca2+).

Tachycardia Algorithm (with pulse)



*Attempted electrical cardioversion is always undertaken under sedation or general anaesthesia

Tachycardia + unstable

- the shock must be synchronised with the Rwave
- Conscious patients must be anaesthetised
- Broad-complex tachycardia and AF, start with 200-J monophasic or **120–150 J biphasic** and increase in increments if this fails
- Atrial flutter and paroxysmal supraventricular tachycardia (SVT) will often convert with lower energies: start with 100 J monophasic or 70–120-J biphasic.

Tachycardia + stable

- No shock

- Regular broad complex tachycardia
- Irregular broad complex tachycardia

Regular broad complex tachycardia

is likely to be ventricular tachycardia
or
SVT with bundle branch block. If there is uncertainty about the source of the arrhythmia, give intravenous **adenosine** as it may convert the rhythm to sinus and help diagnose the underlying rhythm.

Stable ventricular tachycardia can be treated with **amiodarone** 300mg intravenously over 20–60 min followed by an infusion of 900mg over 24 h. Specialist advice should be sought before considering alternatives treatments such as procainamide, nifekalan or sotalol.

Irregular broad complex tachycardia

Irregular broad complex tachycardia is most likely to be AF withbundle branch block. Another possible cause is AF with ventricular pre-excitation (Wolff–Parkinson–White (WPW) syndrome).

There is more variation in the appearance and width of the QRS complexes than in AF with bundle branch block. A third possible cause is polymorphic VT (e.g., torsades de pointes), although this rhythm is relatively unlikely to be present without adverse features.

Seek expert help with the assessment and treatment of irregular broad-complex tachyarrhythmia. If treating AF with bundle branch block, treat as for AF (see below).

Irregular broad

If pre-excited AF (or atrial flutter) is suspected, avoid adenosine, digoxin, verapamil and diltiazem. These drugs block the AV node and cause a relative increase in pre-excitation—this can provoke severe tachycardias.

Electrical cardioversion is usually the safest treatment option.

Treat torsades de pointes VT immediately by stopping all drugs known to prolong the QT interval. Correct electrolyte abnormalities, especially hypokalaemia. Give magnesium sulphate, 2 g, intravenously over 10 min.607,608 Obtain expert help, as other treatment (e.g., overdrive pacing) may be indicated to prevent relapse once the arrhythmia has been corrected. If adverse features develop (which is usual), arrange immediate synchronised cardioversion.

Narrow-complex tachycardia

The first step in the assessment of a narrow complex tachycardia is to determine if it is regular or irregular.

The commonest regular narrow-complex tachycardias include:

- sinus tachycardia;
- AV nodal re-entry tachycardia (AVNRT, the commonest type of SVT);
- AV re-entry tachycardia (AVRT), which is associated with

Wolff–Parkinson–White (WPW) syndrome;

- atrial flutter with regular AV conduction (usually 2:1).

Bradycardia
heart rate <60 beats min−1.

cardiac causes:
(myocardial infarction; myocardial ischaemia; sick sinus syndrome),

non-cardiac causes
(vasovagal response, hypothermia; hypoglycaemia; hypothyroidism, raised intracranial pressure)

drug toxicity
(digoxin; beta-blockers; Ca channel blockers).

Bradycardia

- reduced sinoatrial node firing (caused by excess vagal tone, sinus arrest, and sick sinus syndrome).
- failure of the atrial-ventricular conduction system.
  - medications
  - electrolyte disturbances
  - structural problems caused by acute myocardial infarction and myocarditis.

AV blok

A **first**-degree AV block
prolonged P–R interval (>0.20 s), usually benign.

Second-degree

Mobitz type I, the block is at the AV node, is often transient and may be asymptomatic.

Mobitz type II, the block is most often below the AV node at the bundle of His or at the bundle branches, and is often symptomatic, with the potential to progress to complete AV block.

Advanced second degree AV block - two or more consecutive P waves are nonconducted

Third-degree heart block is defined by AV dissociation

Bradycardia Algorithm