2-7 Tachycardia v.1

Tachycardia in theatre is often due to inadequate depth of anaesthesia / analgesia or alternatively a reflex to hypotension.
Tachycardia should not be treated as an isolated variable: remember to tailor treatment to the patient and the situation.
Follow the full steps to exclude a serious underlying problem.

START

❶ **Immediate action**: Stop any stimulus, Check pulse, rhythm and blood pressure:
- If no pulse or impending arrest: use Box A.
- If narrow complex AND not hypotensive first increase depth of anaesthesia/analgesia.

❷ **Adequate oxygen delivery**
- Check fresh gas flow for circuit in use AND check measured F_iO_2.
- Visual inspection of entire breathing system including valves and connections.
- Rapidly confirm reservoir bag moving OR ventilator bellows moving.

❸ **Airway**
- Check position of airway device and listen for noise (including larynx and stomach).
- Check capnogram shape compatible with patent airway.
- Confirm airway device is patent (consider passing suction catheter).

❹ **Breathing**
- Check chest symmetry, rate, breath sounds, SpO_2, measured VTexp, $ETCO_2$.
- Feel the airway pressure using reservoir bag and APL valve <3 breaths.

❺ **Circulation**
- Check rate, rhythm, perfusion, recheck blood pressure, obtain 12-lead ECG if possible.

❻ Consider underlying problems (Box B).

❼ Consider rate control (Box C).

❽ **Call for help;** consider electrical cardioversion (Box D) if problem not resolving quickly.

❾ **Depth:** Consider current depth of anaesthesia AND adequacy of analgesia.

Box A: CRITICAL TACHYCARDIA

If no pulse, delegate one person (minimum) to chest compressions and **→ 2-1 Cardiac arrest.**
If hypotension worsening or impending arrest, consider electrical cardioversion (Box D).

Box B: POTENTIAL UNDERLYING PROBLEMS

- Stimulation with inadequate depth.
- Consider drug error.
- Also consider: central line/wire; hypovolaemia; primary cardiac arrhythmia; myocardial infarction; electrolyte disturbance; local anaesthetic toxicity **(→ 3-10)**; sepsis **(→ 3-14)**; circulatory embolus, gas/fat/amniotic **(→ 3-5)**; anaphylaxis **(→ 3-1)**; malignant hyperthermia crisis **(→ 3-8)**

Box C: DRUGS FOR TACHYCARDIA

- Fluid bolus 10 $ml.kg^{-1}$ (adult 250 ml)
- Magnesium 50 $mg.kg^{-1}$ (adult 2 g) over >10 min, max conc. 200 $mg.ml^{-1}$
- Amiodarone 5 $mg.kg^{-1}$ (adult 300 mg) over >3 min, NOT in polymorphic VT
- Labetalol 0.5 $mg.kg^{-1}$ (adult 25-50 mg), repeat when necessary
- Esmolol 0.5 $mg.kg^{-1}$ (adult 25-50 mg)
- Adenosine 0.1 to 0.5 $mg.kg^{-1}$ (Adult 3 to 18 mg) – for SVT

Box D: ELECTRICAL CARDIOVERSION

- Attach pads and ECG from defibrillator.
- Ensure adequate depth / sedation / analgesia for cardioversion.
- Engage synchronisation and check for sync spikes on R-waves.
- Start with 1 Jkg^{-1} (adult 50-100 J) biphasic.
- Remember to hold shock button until sync shock delivered.