2-6 Bradycardia v.1

Bradycardia in theatre 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

1 Immediate action: Stop any stimulus, check pulse, rhythm and blood pressure:

- If no pulse OR <u>not</u> sinus bradycardia OR severe hypotension: use Box A.
- If pulse present AND sinus bradycardia: use Box B.

2 Adequate oxygen delivery

- Check fresh gas flow for circuit in use AND check measured F_iO₂.
- Visual inspection of entire breathing system including valves and connections.
- Rapidly confirm reservoir bag moving OR ventilator bellows moving.

3 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).

4 Breathing

- Check chest symmetry, rate, breath sounds, SpO₂, measured VTexp, ETCO₂.
- Feel the airway pressure using reservoir bag and APL valve <3 breaths.

5 Circulation

• Check rate, rhythm, perfusion, recheck blood pressure.

6 Depth

- Consider current depth of anaesthesia AND adequacy of analgesia.
- O Consider underlying problem (Box C).
- 8 Call for help if problem not resolving quickly.
- Consider transcutaneous pacing (Box D).

Box A: CRITICAL BRADYCARDIA

Give atropine 20 μ g.kg⁻¹ (adult 0.5-1 mg) with fluid flush. If no pulse: (or heart rate <60 bpm infant or neonate):

- Delegate (minimum) 1 person to chest compressions
- \rightarrow 2-1 Cardiac arrest

Box B: DRUGS FOR BRADYCARDIA

- Glycopyrrolate 5 μg.kg⁻¹ (adult 200-400 μg)
- Ephedrine 100 μg.kg⁻¹ (adult 3-12 mg)
- Atropine 10 μg.kg⁻¹ (adult 300-600 μg)
- Isoprenaline 0.5 μg.kg.min⁻¹ (adult 5 μg.min⁻¹)
- Adrenaline 1 μg.kg⁻¹ (adult 10-100 μg) in emergency only

Box C: POTENTIAL UNDERLYING PROBLEMS

- Consider whether you could have made a drug error.
- Consider known drug causes (eg. remifentanil, digoxin etc).
- Surgical stimulation with inadequate depth.
- Also consider: high intrathoracic pressure; pneumoperitoneum; local anaesthetic toxicity (→ 3-10); beta-blocker; digoxin; calcium channel blocker; myocardial infarction, hyperkalaemia, hypothermia, raised intra-cranial pressure.

Box D: TRANSCUTANEOUS PACING

- Attach pads and ECG leads from pacing defibrillator.
- Set to PACING MODE.
- Set PACER RATE.
- Increase PACER OUTPUT from 60 mA until capture (spikes align QRS).
- Confirm capture: electrical AND mechanical (femoral pulse).
- Set PACER OUTPUT 10 mA above capture.

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