Bradycardia – Digoxin Toxicity

Set-up:	
Lines/access:	2 x peripheral 20G cannulas
Infusions:	1L crystalloid at 100ml/hr
Airway:	Own, 4L NC
Ventilator:	Not present
Other:	ECG with high grade AV block Empty bottle by bedside. ABG – K 5.9

Clinical Setting

I: You are the HDU registrar called by the ED FY2 about a patient in resus
S: SHO reports patient is bradycardic, hypotensive and she is worried about a possible drug overdose
B: 64 year old male. BG of Atrial fibrillation, heart failure and depression. Recent bereavement
A: Vomiting and HR of 30, wide complexes, BP 74/51, responsive to voice (E3V4M5)
R: Called for urgent assistance

Potential Clinical Course:

- Initially **A** own **B** SpO_2 92% on 4L, chest crackles bi-basally, RR 28 **C** HR30 bpm high grade AV block, BP 74/51, **D** Responsive to voice
- ED FY2 is alone with an ED nurse. More help on the way - if called for. Empty bottle of digoxin by bedside
- Blood gas K 5.9, IV fluid ongoing
- Atropine has minimal effect. Becomes more drowsy – only responsive to pain
- Asks for transcutaneous pacing
- Whilst setting up pacing patient becomes unresponsive – progresses to Pulseless VT
- After 1 shock – ROSC – Idioventricular rhythm on monitor
- Cardiology Consultant arrives – takes handover and asks opinion about treatment from here

This Simulation Scenario has been written by Sam Berhane, the document has been produced by Dr Melia and approved by the FICM Education Sub-Committee. If you have any queries, please contact FICM via contact@ficm.ac.uk.

The Faculty of Intensive Care Medicine

Info Sheet For Faculty

- Initial settings (visible once monitor attached):
  - SpO_2 92% on 4L (98% on 15L via NRM)
  - RR 28/min
  - HR 30bpm – wide complexes, high grade AV block on monitor
  - BP 74/51
  - GCS E3V4M5

- Progress to: SpO_2 98% on 15L via NRM
  - RR 28/min
  - Increase HR to 36bpm on administration of atropine
  - BP 81/54
  - GCS E2V3M4

- Progress to: SpO_2 88% on 15L via NRM
  - RR 12/min
  - HR 27bpm
  - BP 68/43
  - GCS E1V2M1

- Progress rapidly to:
  - SpO_2 unrecordable
  - RR absent
  - HR 184bpm VT (no palpable pulse)
  - BP unrecordable
  - GCS E1V1M1

- Post ROSC: SpO_2 94% on either BVM/NRM
  - RR 22/min
  - HR 110bpm narrow complex tachycardia
  - BP 94/62
  - GCS E3V3M3

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Faculty Roles

Emergency Medicine FY2:

- First day in resus – keen to help but not sure where anything is, how it is connected, and also unclear on doses of drugs
- Clarifies every instruction
- Enthusiastic and able to do CPR/BVM during cardiac arrest as just done ILS
- Unable to operate defibrillator

ED Nurse:

- Band 7 nurse – follows instructions well when paying attention, able to connect all monitoring and take blood samples and competent member of ALS team
- If asked: Digoxin-specific antibody fragments will have to come from pharmacy and isoprenaline will have to be retrieved from coronary care

Cardiology Consultant:

- You were in ED seeing another patient but heard someone was in resus with a severe bradycardia
- Listens attentively to handover then asks participant what they think should occur next in terms of treatment, interventions, and location