RUH Scenario: Pulmonary Oedema

Technical learning objectives

1. Demonstrate ABC approach
2. Demonstrate ability to take a focused and relevant history
3. Demonstrate ability to take a focused and relevant examination
4. Recognises pulmonary oedema
5. Initiates appropriate management in an organized sequence
    a. Oxygen administration
    b. IV access and bloods
    c. Nitrates - Sublingual then iv
    d. Requests ECG
    e. Furosemide
    f. CXR
    g. Recognises need for CPAP and requests it
6. Recognising the need for senior input
7. Re-evaluation of the patient following intervention

Non-technical learning objectives

1. Communicates effectively with colleagues and gives clear instructions
2. Communicates effectively with the patient
3. Demonstrates awareness and utilisation of all available resources

Scenario

You are the surgical house officer on call. The nursing staff have called you to see Jack. He is a 70 year old man. He has had sudden onset shortness of breath after getting up this morning.

PMH
Arthritis
Hypertension - controlled

Drug History
Paracetamol 1g QDS PO
Diclofenac 50mg TDS PO
Bendroflumethiazide 2.5mg OD

Background brief for technician
Day 1 post elective Right THR.
Jack had a dull ache in the centre of his chest about 1 hour ago that lasted for about 10 mins. No radiation. He was in bed at the time reading the paper and thought it was indigestion. Pain was not pleuritic. He has never had anything like it before. Pain free since.

The shortness of breath came on suddenly and is beginning to make him a bit anxious. He thinks he might die and is really scared. The patient is compliant with whatever the doctor tells him.

Jack has asked for his wife to come in.

No calf pain just some tenderness around his right hip joint post-op.
His right leg is a bit swollen but had been since the operation.

Kit

A range of oxygen masks with tubing
Cannulation kit and venepuncture kit
ABG kit
CXR showing pulmonary oedema (see appendix)
ECG showing sinus tachycardia with ST depression (see appendix)
Syringe marked furosemide
GTN spray
Nebuliser
Salbutamol nebules
Atrovent nebules
ABG results printout - (see appendix)
Telephone
Drug chart with all drugs written up – (see appendix)
Observation chart – (see appendix)
Pen
Stethoscope
Blood forms
X-ray forms

Roles of those involved

1. Students (3 – 6 in number) – all F1 doctors with one taking the role as leader in the scenario
2. Nurse (one of the facilitators) – Not "hands on" so does not take blood or cannulate, but can get drugs and equipment as requested and hand it to the F1 doctors. Can also do ECG.
   If facilitators are few for this scenario then the nurse can double up as radiographer to do CXR.
3. Senior input (one of the facilitators) –
   a. The senior medic should have a teaching role when called.
   b. Ensure caller uses an appropriate tool, like "SBAR" (Situation, background, assessment, recommendation) to relay information. If necessary, talk them through it.
   c. When called, can delay arrival if feels call may be a bit too soon.

On arrival, use opportunity to teach and talk them through the rest of the scenario. Do not be hands on. If necessary, stop the scenario, rewind and start again after you have pointed them in the right direction.

SIMMAN initial setup

SIMMAN sitting up
Breathless
Crackles in both lung fields
HR = 120 reg with anterior ST depression
BP = 190/110
Sats =88% on Air
RR = 30
Temp = 37.0

SIMMAN scenario conclusion

After GTN given
Still breathless but improved
Fewer crackles in both lung fields
HR = 125
BP = 160/90
Sats = 92% on oxygen
RR = 24

Debrief

1. Reflection on learning objectives – where they achieved and where there any areas in need of improvement?
2. Discuss the causes of pulmonary oedema.
3. Discuss treatment options if patient hypotensive
4. Discuss role of nitrates and CPAP in treating pulmonary oedema
5. Write drug chart – prescribing all additional meds.
6. Documentation in notes
7. Discussion regarding ongoing management