Using Investigations to Prescribe Safely 2– Notes for Candidate

Using Investigations to Prescribe Safely Station: 10 minutes
Patient: Michael Brown (83M)
DOB: 07/03/1940
E35876702

You are the FY1 on the AMU.
Michael Brown has presented with palpitations for the last 15 hours.

The station will last 10 minutes.

Please review the notes and observation chart. The BNF and a calculator are available for you to use

You are expected to:

0-5 minutes:

- Summarise the key points in the history and examination and explain the differential diagnosis.
- Suggest appropriate initial investigations, explaining why
- Review the results and confirm your diagnosis

5-10 minutes:

- Prescribe safely and appropriately for this patient, given the information provided in the station.

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Using Investigations to Prescribe Safely 2: Station documents

Clerking notes

HPC:
83M presenting with palpitations and tachycardia to the ED. Noted to have a new irregularly irregular rhythm on ECG and given stat doses of bisoprolol. Now rate controlled. Patient did not have any chest pain, dizziness or syncopal episodes. Denies any blurring of vision, headaches or vomiting. Recently treated for a urinary tract infection which is now resolving. Bowels functioning as normal.

Patient has never before had palpitations

O/E:
Chest : clear, HS I+II+0 irregular rhythm
Abdomen: SNT
Calves: SNT, no peripheral oedema

PMH:
Diabetes, hypertension, CKD3

DHx:
metformin, linagliptin, Ramipril, bisoprolol

Allergies: nkda

SHx:
Non-smoker, occasional drinker

Patient height, weight:
Height: 179cm
Weight: 57kg

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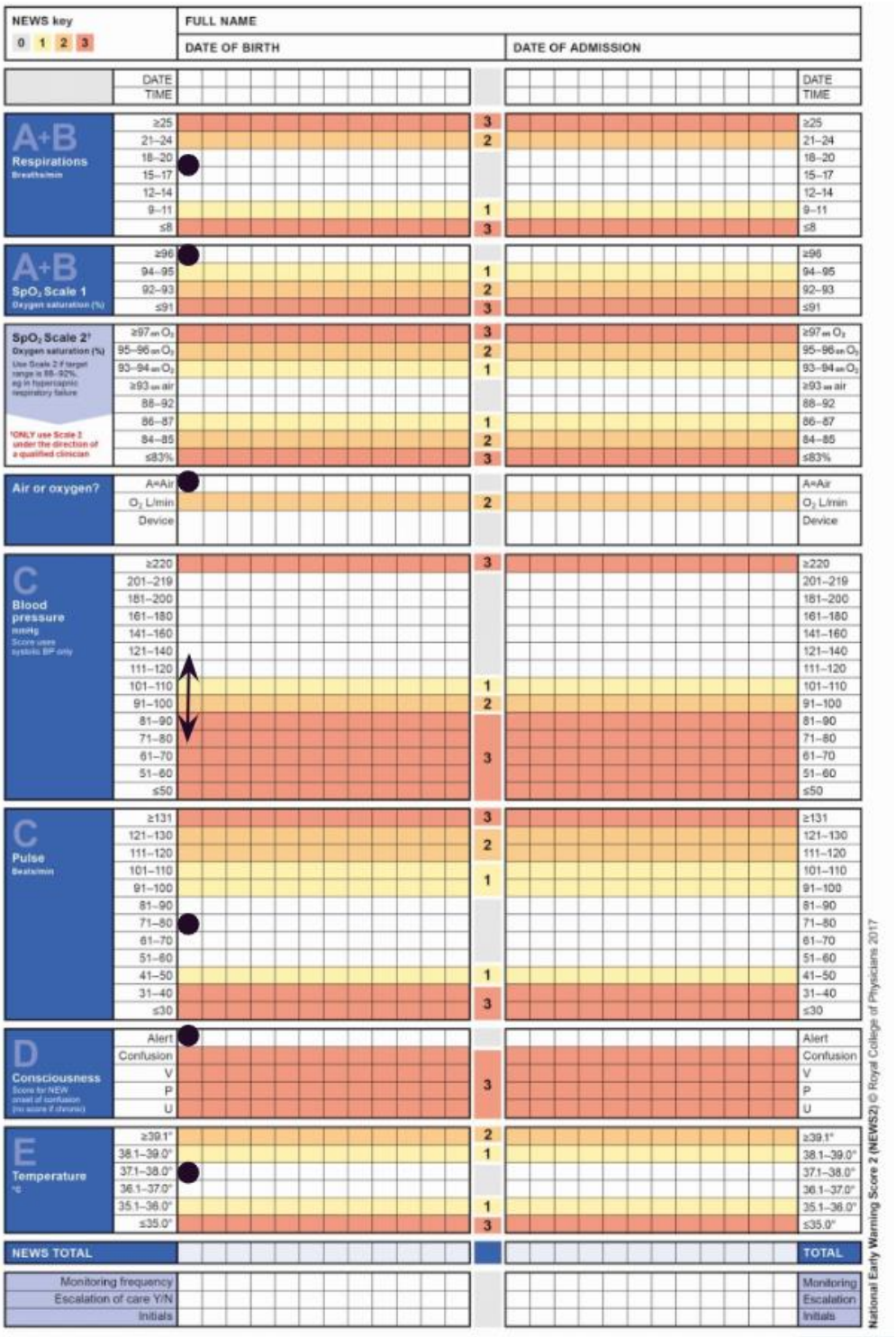

NOW TAKE A MOMENT TO SUGGEST APPROPRIATE INITIAL INVESTIGATIONS BEFORE SCROLLING DOWN

Come up with a list of differentials.

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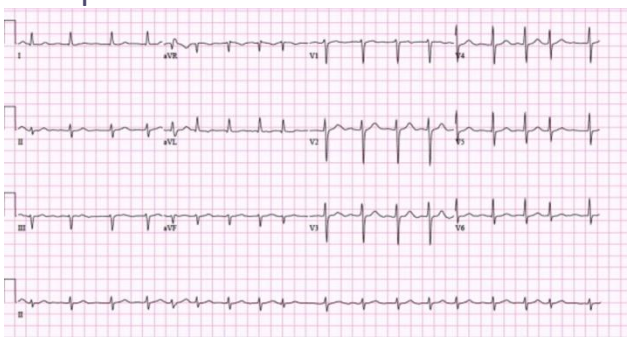
Investigations

Urine culture:

No growth

ECG:

108bpm



(source ECG waves)

Bloods:

FBC: Hb 140, WCC 10.7, neuts 7.3, plts 380
U&Es: Na+ 138, K+ 4.7, Ur 6.3, Cr 152, eGFR 38.2, CrCl: 26 ml/min

LFTs: NAD
Bone profile: Adj. Ca 2+ 2.3
Mg2+: 0.89
CRP: 24

CXR:

(source wikipedia)

Platelet count: 140 – 400 x10^9/L

Na^+: 133–146 mmol/L

K^+: 3.5–5.3 mmol/L

Ca^{2+}(adjusted): 2.2-2.6 mmol/L

Mg^{2+}: 0.7–1.0 mmol/L

Chloride: 98-106 mmol/L

Phosphate: 0.74 – 1.4 mmol/L

Urea: 2.5 – 7.8 mmol/L

Creatinine:

- ♂ 59–104 µmol/L
- ♀ 45–84 µmol/ L

Alkaline phosphatase (ALP): 30–130 U/L

Alanine aminotransferase (ALT):

- ♂ <41 U/L
- ♀<33 U/L

Aspartate aminotransferase (AST): 1 – 45 U/l

Bilirubin: <21 µmol/L

GGT:

- ♂ <60 U/L
- ♀<40 U/L

Albumin: 35–50 g/L

Haemoglobin (Hb):

- ♂ 130 – 180 g/L
- ♀ 115 – 165 g/L

White cell count (WCC):

- Total: 3.6 – 11.0 x 10^9/L
- Neutrophils: 1.8 – 7.5 x 10^9/L

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Using Investigations to Prescribe Safely 2 – Examiner marksheet

MARKING RUBRIC	✓
Assimilation of information • Confident, accurate approach to reviewing and **summarising information**	
Investigations • Requests **appropriate initial investigations** and appropriately justifies these	
Interpretation of results and diagnostic reasoning • Concise, structured approach to interpretation of results • Generates appropriate list of **differential diagnoses** and uses investigation results to refine this appropriately, giving an appropriate most-likely diagnosis	
Clearly documented prescription • Capitals, time, date, signature with block print name • Legible, black ink	
Confident prescriber • Can prescribe correctly (without using the BNF if it is straightforward) • Evidence of having practiced prescribing	
Prescribes safely (patient details) • Allergies documented • Correct boxes completed, including any special instructions	
Prescribes safely (Drug) • Drug name, dose, route, frequency • Confident accurate approach • Considers relevant investigation results: and makes **appropriate adjustments**	

Global Impression:

- Excellent
- Good
- Pass
- Borderline
- Fail

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Using Investigations to Prescribe Safely 2 : Example answer

Differential diagnosis:

1. New rate controlled Atrial fibrillation
2. (New) (rate controlled) Atrial fibrillation

Prescribing considerations:

This is a case of new diagnosis of AF in an elderly patient. Likely precipitated by the resolving UTI.
Since the rate is controlled, the best drug to prescribe is an anticoagulant in this case.

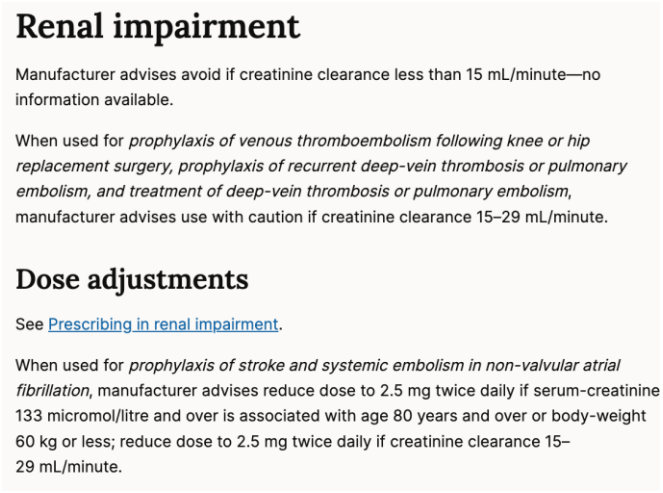
The station is likely to have ChadsVasc scoring information provided but it helps to know what the criteria are.

Michael's score is: 4 (Age, Sex, Hypertension, Diabetes)

So, the following drug class must be used:
DOAC (apixaban usually first line)
Less preferred but also applicable:
LMWH (as inpatient) is suitable but will need an oral alternative at time of discharge
Warfarin (however no longer preferred due to practicality and rise of DOACs)

Given the patient has renal impairment, we need to account for dose adjustments.

Example for Apixaban:



Renal impairment

Manufacturer advises avoid if creatinine clearance less than 15 mL/minute—no information available.

When used for *prophylaxis of venous thromboembolism following knee or hip replacement surgery, prophylaxis of recurrent deep-vein thrombosis or pulmonary embolism, and treatment of deep-vein thrombosis or pulmonary embolism*, manufacturer advises use with caution if creatinine clearance 15–29 mL/minute.

Dose adjustments

See Prescribing in renal impairment.

When used for *prophylaxis of stroke and systemic embolism in non-valvular atrial fibrillation*, manufacturer advises reduce dose to 2.5 mg twice daily if serum-creatinine 133 micromol/litre and over is associated with age 80 years and over or body-weight 60 kg or less; reduce dose to 2.5 mg twice daily if creatinine clearance 15–29 mL/minute.

Patient's CrCl is 26ml/minute. So, the apixaban dose must be halved. The following prescription will score full marks:

- **Apixaban 2.5mg PO BD**
- **Edoxaban 30mg PO OD**
- **Rivaroxaban 20mg PO OD**

NB: any other DOAC with the appropriate adjustments will score full marks

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