CARDIOLOGY QUESTIONS FOR THE FACEM EXAM
2016 - 2017
TIME ALLOWED:
70 mins
E-mail answers with return address to andrewRcoggins@gmail.com
QUESTION 1

A 71-year-old man presents to the emergency department with a history of chest pain and palpitations.

His vital signs are:

BP 105/60
HR 176
RR 22
GCS 14/15

(ECG on next page)

i. Describe the ECG changes that support the diagnosis of VT. (2 marks)

ii. List five (5) clinical features that would influence your decision to urgently perform electrical cardioversion on this patient. (5 marks)

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2. 
3. 
4. 
5. 
III) Assuming none of these features are present, list three (3) choices for options for cardioversion, specifying intervention and doses.

(3 marks)

<table>
<thead>
<tr>
<th>Order</th>
<th>Intervention</th>
<th>Dose and Route</th>
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<tbody>
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</table>
A 32-year-old lady is brought to your emergency department from home where she had an episode of ‘syncope’.

On examination there is no evidence of acute injuries.

i. List five (5) important diagnoses you would consider and one (1) risk factor and one (1) symptom that would support each of the 5 listed problems.

<table>
<thead>
<tr>
<th>Number</th>
<th>Important diagnosis</th>
<th>Symptom</th>
<th>Underlying Risk factor</th>
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ii. List and justify five (5) initial investigations you would undertake.

<table>
<thead>
<tr>
<th></th>
<th>Initial investigation(s)</th>
<th>Reasoning</th>
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</table>
A 67-year-old lady presents to the Emergency Department (ED) with a history of increasing Shortness of Breath over the last 2 days.

She is brought in by ambulance and was given an anti-emetic on route.

She has a past medical history of Diabetes Mellitus, Lung Cancer (NSCLC) and Hypertension

His initial observations are:
Blood Pressure 89/60 Respiratory Rate 20/min
Heart Rate 115 Temperature 37.4 degrees
Oxygen Saturations 100% (on 6 litres by Hudson Mask)

(ECG is on next page)

I) Describe the patient’s Electrocardiogram. (5 marks)

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(End of page)
II) List 5 differential diagnoses (5 marks)

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A 66-year-old man with a heavy smoking history and a diagnosis of COPD presents with shortness of breath and palpitations. He has had an increasing cough over the last 2 days.

Medications include inhaled Tiotropium, Seretide and Salbutamol.

The patient is not on home oxygen.

- Observations:
  
  Blood Pressure 110/70 Respiratory Rate 25/min
  
  Heart Rate 120 (irregular) Temperature 37.7 degrees
  
  Oxygen Saturations 91% (on Room Air)

  (ECG on next page)

  I) Describe this patient’s 12 lead ECG (5 marks)

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II) List 5 differential diagnose for this patient's presentation and ECG (5 marks)

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QUESTION 5

You are the only senior doctor working a busy evening shift in emergency department when the triage nurse tells you that 19 patients have self-presented to triage in the last five minutes with having ingested a large quantity of “oleander tea” as part of a party game at a music festival. An ambulance has turned up with a twentieth patient from the festival complaining of palpitations.

i. What further information do you ask the ambulance officer? (3 marks)

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II) What key steps do you take to:

a. Prepare your emergency department for this situation? (4 marks)

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b) Prepare the hospital as a whole for this situation? (3 marks)
QUESTION 6

It is late evening on a weeknight. You are the duty senior doctor in a tertiary level Emergency Department.

The 20 bedded ED currently has all but two cubicles occupied. Ambulance control rings to notify you that an ambulance is en route (ETA 5 mins) with a 59 year old man with a probable acute myocardial infarct.

All five of your resuscitation bays are occupied by the following:

1) A 75 year old lady with unstable angina. She is awaiting a bed in the cardiology unit.
2) A 50 year old man with resolved chest pain and normal ECG. He has just arrived by ambulance and is yet to be assessed.
3) A 3 year old girl with croup. She is now stable 30 minutes after nebulised adrenaline.
4) A 22 year old man being monitored 2 hours following an overdose of the drug Carbamazepine.
5) A 17 year old man with a closed head injury. He is about to be intubated by your registrar because his GCS has fallen to 9/15.

I) How will you prepare the ED to accommodate the new ambulance patient? (3 marks)

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II) The patient arrives please comment on his ECG (3 marks)
III) The patient has a short run of non-sustained VT. Describe 4 possible anti-arrhythmic agents that could be used specifying drug, dose as well as 1 pro and 1 con. 4 marks

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<tr>
<th>Drug</th>
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A 32-year-old female is brought to your ED by ambulance with a suspected drug overdose. Her observations are as follows

BP 90/60
HR 140
Saturations 94% on Non-re-breather mask
Respiratory Rate 10
GCS 14/15

(Her ECG on arrival is shown on the next page)

I) Describe the abnormalities on the ECG and state the most likely cause (4 marks)

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PLEASE STATE HERE THE MOST LIKELY 'CAUSE':

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II) The patient’s partner reveals she has taken >40 of her prescribed antidepressant tablets.

Outline the key steps in the initial management plan for this patient in the ED (6 marks)

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A 6 month old child is found by his parents to be cyanosed and unresponsive in bed. He is brought to the Emergency Department where he dies despite extensive resuscitative efforts. The parents are anxiously awaiting the outcome.

a) List your how you would estimate the following factors for a Paediatric patient suffering a Cardiac Arrest in the ED

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<tbody>
<tr>
<td>i. Weight</td>
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<td>ii. Defibrillation Joules</td>
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<tr>
<td>iii. Endotracheal Tube Size(s)</td>
<td>1 mark</td>
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<td>iv. Fluid Bolus</td>
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<tr>
<td>v. Glucose Bolus for Hypoglycaemia</td>
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</tbody>
</table>
vi. Adrenaline dosing for cardiac arrest

b) List 8 possible causes to account for the child’s untimely death
A 48-year-old man presents to the Emergency Department (ED) with a history of Cardiac Arrest at the local supermarket.

(CPR was started by bystanders at once)

He received 2 DC Shocks by the ambulance paramedics and has a Return of Spontaneous Circulation (ROSC) prior to arrival in the ED

- Triage – ATS Category 2
- GCS 6
- Her Observations are:

<table>
<thead>
<tr>
<th>Blood Pressure 80/50</th>
<th>Respiratory Rate 15/min (spontaneous)</th>
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<tbody>
<tr>
<td>Heart Rate 75</td>
<td>Temperature 36.1 degrees</td>
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<td>Oxygen Saturations 99%</td>
<td>(on 10 litres by Hudson Mask)</td>
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(EGC on next page)
I) Describe the abnormalities on the Electrocardiogram  3 marks

II) List 6 differentials for ST elevation on an ECG  3 marks
III) Outline your management priorities after ROSC in the ED 4 marks
QUESTION 10

A 4-month-old girl presents with irritability and poor feeding.
- His ECG is shown below:
I) Describe the abnormalities on the ECG and give 4 possible causes 5 marks

II) Outline your initial management in the ED 4 marks
QUESTION 11

A 64-year-old man is being evaluated in your emergency department after an episode of severe chest discomfort which has now resolved.

His observations are:

- BP 95/50 mmHg supine
- HR 30
- RR 20 /min
- O2 saturation 97% room air
- GCS 14/15

(His ECG shown on the next page)

I) Describe and his ECG and List 4 potential causes of the ECG appearances (6 marks)
III) Outline the key steps in management for a symptomatic Bradycardia in the ED (4 marks)

END OF PAPER