Cardiology Case Scenarios

Consultation Skills to review:

- Introduction
- Opening question and active listening skills
- Open to closed questions

Specific history questions

  - Breathlessness (exercise tolerance – distance (NYHA classification – Class I – no limitation, Class II – slight limitation, Class III – marked limitation, Class IV – symptoms present at rest (severe heart failure)), orthopnoea, PND)
  - Palpitations (mode of onset and termination, triggers – exercise, alcohol, caffeine, frequency, duration of attacks, rhythm – regular and fast or irregular (ask patient to tap it out), associated with syncope?)
  - Syncope (loss of consciousness – on standing (postural hypotension), with palpitations (arrhythmias) or on exertion (left ventricular outflow obstruction - aortic valve stenosis or hypertrophic cardiomyopathy))
  - Differentiate syncope from fainting – vasovagal – sudden bradycardia 2ry to stimuli

- Summarisation
- Signposting
- Differentiating between unstable angina and stable angina and MI
- Consider higher level consultation skills such as explanations to patients e.g. what is angina? What words would you use to describe it?
- Consider smoking cessation advice and motivating patients to change lifestyle choices
- Consider advising patients on low cholesterol diets

Clinical Areas

Angina / Myocardial Infarction

Heart Failure

Endocarditis

Arrhythmias (e.g. AF versus heart block versus SVT)

Cardiac valvular disease

Peripheral vascular disease

Aortic dissection

Week 4 - Scenario 1 Student Doctor

You are a 4th year medical student at your medical emergency department. You are asked to see a 56 year old male patient named Mahmood who has just arrived in. Introduce yourself and begin taking your history as you normally would. At the end summarize back to the patient the history in their own words. Inform the patient of your action plan – what will you do next?

Week 4 – Scenario 1 Male Patient

Mahmood Abadi
56 years old
Zerka
Family of 6 – 4 children
Works as a Company Manager for a building company

PC: Chest pain

HPC: Sudden onset of chest pain 2 hours ago whilst sitting in a stressful meeting
Central and radiating to both shoulders
Like heavy weight on chest
9/10 pain scale
Associated with sweating and red face, vomited once
Feels like you are going to die (impending doom)

PMH: Previous episode of chest pain when walking up Jebel Weibdeh last month that disappeared when you stopped walking

2014 Diabetes
2010 Hypertension
2011 High cholesterol

DH: Glibenclamide 5mg in morning
Lisinopril 5mg in morning
Simvastatin 40mg at night

SH: Smoker since age 20 years
No alcohol intake

Scenario 1 Case Discussion – Potential Myocardial Infarction

- What went well? What did everyone else think went well? Anything you felt you could have done differently? What do you need to focus on for the future?

- Is there any more information you would like to know (or does anyone else want to know)?

- How do you distinguish between stable and unstable angina and MI? (Stable angina when you exert yourself e.g. up hill – pain goes away when you stop the activity, unstable angina when occurs at rest or minimal exertion – MI suspicious if pain lasts more than 20 minutes and not relieved by GTN spray / tablets – emergency situation)

- What are the risk factors for IHD?

    - Smoking
    - High cholesterol
    - Family History
    - Excessive alcohol
    - Obesity
    - Age
    - Sex (M>F)
    - High BP
    - Diabetes

- What will you do next?

  Examine them – Pulse, BP, listen to heart sounds and chest

  Organise ECG quickly – discuss ECG changes looking for

  Take bloods for cardiac enzymes and determine whether MI and need to thrombolyse (discuss criteria – ST elevation (2 small squares in 2 corresponding anterior leads or 1 small square in 2 corresponding inferior leads) + raised cardiac enzymes)

Week 4 - Scenario 2 Student Doctor

You are a 4th year medical student in the cardiology outpatient clinic at Prince Hamza Hospital. You are asked to see a 75 year old male patient named Ibrahim who has new onset of breathlessness and leg swelling. Introduce yourself and begin taking your history as you normally would. At the end summarize back to the patient the history in their own words.

Week 4 – Scenario 2 Male Patient

Ibrahim Ben Hani
75 years
Mafraq
Iraqi descent
Large family – married twice and have 16 children

PC: Breathlessness over the last few months and both legs are swollen in the last few weeks

HPC: 4 months breathless – especially climbing stairs and now when walking from bedroom to bathroom

At night you need 4 pillows to prop you up because if you slip down the pillows you feel breathless and even wake up on occasions breathless

Last 3 weeks have noticed swelling in both feet

Worse at end of day and better if prop your feet up

No recent chest pain or palpitations

Concern: You feel anxious and concerned about your breathlessness and `you feel like you don't have long to live'

PMH:

Myocardial Infarction 2017

Hypertension 2006

Atrial Fibrillation 2012

Obesity

DH: Bisoprolol 5mg

Lisinopril 5mg

Dabigatran

Allergies: Digoxin

SH: Ex smoker

Scenario 2 Case Discussion – Heart Failure

What went well? What did everyone else think went well? Anything you felt you could have done differently? What do you need to focus on for the future?

Is there any more information you would like to know (or does anyone else want to know)?

What diagnosis do they think this history fits with?

Heart failure with symptoms of breathlessness on minimal exertion (class III to IV on NYHA – discuss (in introduction)), orthopnoea (propping themselves up with extra pillows at night) and PND (wakes up breathless if slips down the pillows) and peripheral oedema with leg swelling. These are symptoms of left ventricular dysfunction with significant pulmonary oedema and peripheral oedema.

Did they explore the cue about anxiety? How do they feel about this discussion with a patient? Do they know the prognosis of someone with severe heart failure? (If have symptoms with HF average life expectancy 36 months – worse if in class III and IV on NYHA)

What are his risk factors for heart failure (highlighted in bold)? What are his risk factors in general?

- **Coronary artery disease**
- **Age**
- **Hypertension**
- Alcohol abuse
- **Obesity**
- **Smoking**
- Mitral valve disease
- Previous myocarditis
- Inherited conditions (cardiomyopathy…)
- **Diabetes**
- Certain medications – nsaids, some diabetic medications…

- What is the gold standard test to diagnose heart failure?
  - Echocardiogram – looking for ejection fraction result (>35%)

- How do you manage heart failure?
  - Beta-blockers – aim for pulse of 60 bpm (to reduce workload on heart) – increases longevity of life
  - ACEI – titrate with BP but also associated with improved mortality (improves left ventricular function
  - Diuretics – improve symptoms breathless and leg swelling but don't improve mortality
  - Stop nsaids and other potential harmful drugs
  - Maximise BP to target 130/80 mmHg
  - If severe heart failure may need to do daily weights, restrict fluids and weigh regularly

Week 4 - Scenario 3 Student Doctor

You are a 4th year medical student in the cardiology outpatient clinic at Prince Hamza Hospital. You are asked to see a 70 year old female patient named Aya who has been referred for new onset of fainting episodes. Introduce yourself and begin taking your history as you normally would. At the end summarize back to the patient the history in their own words.

Week 4 – Scenario 3 Female Patient

Aya
70 years
Widow has 8 children
Lives alone

PC: New onset of fainting episodes

HPC: Over the last month had fainting episodes after exertion – for example walking upstairs and collapsed on to the floor – lost consciousness but came around quickly

Another episode when carrying shopping back home had chest pain, felt breathless and collapsed to floor. When you came round there was a crowd around you which was embarrassing and you were taken to hospital for some cuts and bruises.

Long standing breathlessness on exertion, no difficulty breathing when sleeping or lying flat

No leg swelling

Also noticed palpitations particularly when you exert yourself in the last 6 months and chest tightness like a heaviness on your chest, 7/10 pain scale.

Concern: Because you are a widow your main concern is collapsing whilst alone and no-one is able to help you

PMSH: Previous endocarditis as a child

Diabetes, Hypertension, Hypercholesterolaemia

DH: Metformin 850mg bd, Ramipril 5mg od, Simvastatin 40mg nocte

FH: Nil

SH: None smoker

Scenario 3 Case Discussion – Aortic Stenosis

What went well? What did everyone else think went well? Anything you felt you could have done differently? What do you need to focus on for the future?

Is there any more information you would like to know (or does anyone else want to know)?

What differential diagnoses would you consider in this patient?

- Angina with cardiac sounding chest pain with potential MI
- Arrhythmia – heart block can present with palpitations and fainting episodes
- This case though is actually severe aortic stenosis with exertional syncope

When somebody presents with syncope ask about when them when it happens?

- With palpitations (arrhythmia)
- On standing (postural hypotension)
- On exertion (severe aortic stenosis, outflow obstruction, cardiomyopathy)

What are the risk factors for this woman's aortic stenosis?

- Age
- Endocarditis as a child
- Cardiovascular risk factors (hypertension, diabetes, hypercholesterolaemia)

Week 4 - Scenario 4 Student Doctor

You are a 4th year medical student in the cardiology outpatient clinic at Prince Hamza Hospital. You are asked to see a 65 year old female patient named Rahaf who you are seeing in the diabetic clinic. Introduce yourself and begin taking your history as you normally would. At the end of the consultation summarize back to the patient the history in their own words.

Week 4 – Scenario 4 Female Patient

Rahaf
65 years
Married, housewife with 4 children
Lives with her retired husband

PC: Noticed painful right calf when walking up hill the last 6 months

HPC: Last 6 months you have noticed that when you climb the stairs you get pain in your calf – like a throbbing pain that stops when you stop climbing and comes on again if you carry on climbing

You can manage walking about 50 metres on flat ground before you get pain in your right calf

You feel also coldness and numbness and tingling in your right foot

In the last month you have noticed that your middle toe on your right foot has turned a black colour and when you walk in the neighbourhood you notice the dogs follow you around which is very distressing

You suffered with painful feet for many years after you were diagnosed with diabetes

You also get night leg cramps in bed and are having to get out of bed to relieve it
You have struggled to control your diabetes for several years- you admit you like Arabic sweets, chocolate and cake!

Concern disclosed (if asked): The dogs that follow you around which is very distressing

PMSH: Diabetes 2006, Myocardial Infarction 2009, CABG 2010, Diabetic retinopathy 2013
DH: Metformin 500mg tds, Gliclazide 80mg od, Rosiglitazone 5mg od, Aspirin 100mg, Atorvastatin 40mg nocte.
SH: Ex smoker

Week 4 Scenario 4 - Peripheral vascular disease

What went well? What did everyone else think went well? Anything you felt you could have done differently? What consultation or communication skills do you need to focus on for the future?

Is there any more information you would like to know (or does anyone else want to know)?

What do you think is the diagnosis in this case?
PVD – leg pain on exertion (in this case calf but can be thigh or foot too), coldness and numbness are all symptoms associated with PVD
The black toe and the dogs following her around is due to gangrene and the smell

What are her risk factors?

- Age
- Poorly controlled diabetes (she already has secondary complications with her retinopathy so it is likely she has peripheral neuropathy too)
- Cardiovascular factors (ex smoker, high cholesterol, high BP)

What examination would you make on this lady?

Do diabetic foot check – inspection – check for colour changes, hair loss, nail changes, gangrene, callus or ulceration (check all areas of the foot), palpate the pulses, check for peripheral sensation with monofilament and vibration sense

Do peripheral vascular disease check – all above but include Berger's test and check all pulses in leg from aorta, to right groin pulse, popliteal and compare to other side. Check for bruits.