Introduction to Clinical Medicine

Lecture : 4

History Examination- CVS

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* Introductory - CVS (1)

The Cardiovascular System

Introductory course , HU

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- The heart comprises two muscular pumps working in series,

covered in a serous sac (pericardium) that allows free movement

with each heart beat and respiration.

-The right heart(right atrium and ventricle) pumps deoxygenated blood returning from the systemic veins into the pulmonary circulation at relatively low pressures.

-The left heart (left atrium and ventricle) receives

blood from the lungs and pumps it round the body to the tissues at higher pressures.

- Atrioventricular valves (tricuspid on the right side, mitral on the left) separate the atria from the ventricles.

- The pulmonary valve on the right side of the heart and the aortic valve on the left separate the ventricles from the pulmonary and systemic arterial systems, respectively.

- Cardiac contraction is coordinated by specialised groups of cells. The cells in the sinoatrial node normally act as the cardiac pacemaker.
- Subsequent spread of impulses through the heart ensures that atrial contraction is complete before ventricular contraction (systole) begins.
- At the end of systole the ventricles relax and the atrioventricular valves open, allowing them to refill with blood from the atria (diastole).

* atria contracts in the diastole.
* ventricles contract in the systole.

How to approach to a patient with a specific complain ?

1. History (inquiry about symptoms)
2. Physical examination(looking for signs)
3. Investigations
4. Finally you reach a specific diagnosis

HISTORY

- Cardiovascular diseases may present with a number of diverse symptoms.
- non-cardiac causes must also be considered(differential diagnosis for a certain complain)

↳ Means that there is more than one possibility for your diagnosis. you must differentiate between these to determine the actual diagnosis and appropriate tt.

Note
*cardinal symptoms means symptoms that are confined to a certain system

*Cardinal symptoms of CVS:

1. Chest pain

- Typical angina pain
- Differential diagnosis : cardiac causes vs non-cardiac causes

ك تفرقي بينهم عن طريق ال history & physical examination

- Ask about ? (SOCRATES !)
  - * site (retrosternal / right / left ...)
  - * onset (gradual / sudden ...) ore is it gradual (is it acute or chronic pain) *نعم جدا
  - * Character (Stabbing ...
  - * Radiation
  - * Associated symptoms
  - * Timing /duration of the pain (intermittent / continuous / increasing or decreas
  - * Exacerbating or releasing factors
  - * Severity (Scale out of 10)

4.3 Cardiovascular causes of chest pain and their characteristics

	Angina	Myocardial infarction	Aortic dissection	Pericardial pain	Oesophageal pain
Site	Retrosternal	Retrosternal	Interscapular/retrosternal	Retrosternal or left-sided	Retrosternal or epigastric
Onset	Progressive increase in intensity over 1–2 minutes	Rapid over a few minutes	Very sudden	Gradual; postural change may suddenly aggravate	Over 1–2 minutes; can be sudden (spasm)
Character	Constricting, heavy	Constricting, heavy	Tearing or ripping	Sharp, 'stabbing', pleuritic	Gripping, tight or burning
Radiation	Sometimes arm(s), neck, epigastrium	Often to arm(s), neck, jaw, sometimes epigastrium	Back, between shoulders	Left shoulder or back	Often to back, sometimes to arms
Associated features	Breathlessness	Sweating, nausea, vomiting, breathlessness, feeling of impending death (angor animi)	Sweating, syncope, focal neurological signs, signs of limb ischaemia, mesenteric ischaemia	Flu-like prodrome, breathlessness, fever	Heartburn, acid reflux
Timing	Intermittent, with episodes lasting 2–10 minutes	Acute presentation; prolonged duration	Acute presentation; prolonged duration	Acute presentation; variable duration	Intermittent, often at night-time; variable duration
Exacerbating/ relieving factors	Triggered by emotion, exertion, especially if cold, windy Relieved by rest, nitrates	'Stress' and exercise rare triggers, usually spontaneous Not relieved by rest or nitrates	Spontaneous No manœuvres relieve pain	Sitting up/lying down may affect intensity NSAIDs help	Lying flat/some foods may trigger Not relieved by rest; nitrates sometimes relieve
Severity	Mild to moderate	Usually severe	Very severe	Can be severe	Usually mild but oesophageal spasm can mimic myocardial infarction
Cause	Coronary atherosclerosis, aortic stenosis, hypertrophic cardiomyopathy	Plaque rupture and coronary artery occlusion	Thoracic aortic dissection rupture	Pericarditis (usually viral, also post myocardial infarction)	Oesophageal spasm, reflux, hiatus hernia

NSAIDs, *non-steroidal anti-inflammatory drugs.*

* Angina equivalent are considered to be symptoms of myocardial ischemia.
→ certain group of people (eg: alderly females, diabetic --) may not present w/ chest pain when they have MI ~~in~~ they only present w/ dyspnoea

→ when the patient is aware of his breathing

2. **Dyspnoea (breathlessness)**

* Cardiac (HF , PE, arrhythmias , angina equivalent)
* Vs non-cardiac causes

* having dyspnea only while doing certain activity

-Exertional dyspnoea is the symptomatic hallmark of chronic HF.

The New York Heart Association grading system is used to assess the degree of symptomatic limitation caused by the exertional breathlessness of heart failure

→ * مقسم حالة المرضى الـ grades
وكل grade حسب معناه.
(هاد عبارة عن grading
لـ patients كل عندهم HF)

→ وتحديداً chronic stable HF (without excacerbating symptoms)

* Non cardiac causes of chest pain :
1] Esophageal pain
2] Musculoskeletal pain
3] HSV infection (herpes zoster) → pain in the dermatome C5 region

Pt. with acute decomp. HF present with:

1- Orthopnea → Indicator of acute decompensated HF. and it means more dyspnoea while supine position, relieved by sitting or standing

2- PND (differentiate from respiratory causes ?)

* Acute decompensated HF. is a sudden worsening of the signs and symptoms of HF. → Means that the pt. of HF goes through decompensation due to certain causes like (fever, infection, drugs, new MI, arrhythmias) ⇒ These pts. will present with more dyspnea, more limitation in physical activity

* In this position there is more preload (↑ venous filling) → so this can distribute to the lungs

* paroxysmal nocturnal dyspnea ← هاد الوصف بالزبط يعني انه المريض عنده مشكلة بال cardiovascular system

Is a sensation of shortness of breath that awakens the patient, often after 1-2 hrs. of sleep, and is usually relieved by the upright position

اذا مجرد ما بصحى و بوقف بروح ال shortness of breath بتفرق إنه مو RS causes (asthma / COPD) لأنه هدول بحتاجوا يروحوا عالشباك مثلاً عشان يقدر يتنفس / أو لازم ياخد البخاخ مثلاً

Imp. Note.

PND is confined to cardiovascular sys. only

من الانترنت * Note that people often describe orthopnea as a sensation of tightness in the chest that makes breathing difficult or uncomfortable (غالباً while supine position)

NYHA Class	Level of Clinical Impairment
I	 No limitation of physical activity. Ordinary physical activity does not cause undue breathlessness, fatigue, or palpitations.
II	 Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in undue breathlessness, fatigue, or palpitations.
III	 Marked limitation of physical activity. Comfortable at rest, but less than ordinary physical activity results in undue breathlessness, fatigue, or palpitations.
IV	 Unable to carry on any physical activity without discomfort. Symptoms at rest can be present. If any physical activity is undertaken, discomfort is increased.

- In acute dyspnoea, ask about:

- duration of onset (Is the onset gradual or sudden??)
- background symptoms of exertional dyspnoea and usual exercise tolerance
- associated symptoms: chest pain, syncope, palpitation or respiratory symptoms (such as cough, sputum, wheeze or haemoptysis.

[*Fever indicate pneumonia]

wheeze ↓ may have asthma/COPD

- In patients with chronic symptoms, ask about:

- relationship between symptoms and exertion
- degree of limitation caused by symptoms and their impact on everyday activities
- effect of posture on symptoms and/or episodes of nocturnal breathlessness
- associated symptoms: ankle swelling, cough, wheeze or sputum.

SOCRATES ↓↓↓↓↓↓↓
✗✓✗✗✓✓✓

* ممكن كمان اسئل على ال واقيا, الكتاب

Severity: you ask about how dyspnoea does cause limitation of physical activity.

3 · Palpitation

-Palpitation is an unexpected or unpleasant awareness of the heart beating in the chest.

-Detailed history taking can help to distinguish the different types of palpitation (Box 4.6).

- Ask about:

- nature of the palpitation: is the heart beat rapid, forceful or irregular? Can the patient tap it out?
- timing of symptoms: speed of onset and offset; frequency and duration of episodes * More duration is more dangerous.
- precipitants for symptoms or relieving factors
- associated symptoms: presyncope, syncope or chest pain → * happens with dangerous arrhthmia like ventricular arrhythmia
- history of underlying cardiac disease (ischemic Heart ds, chronic heart ds.)

Cardiovascular syncope is a brief loss of consciousness (from a few seconds to a few minutes), that is characterized by rapid onset of spontaneous recovery. It is caused by decreased blood flow to the brain.

* Presyncope: Is the sensation that you are going to faint

4

• Syncope and presyncope

- Syncope is a transient loss of consciousness due to transient cerebral hypoperfusion.

- Causes include ① postural hypotension, ② neurocardiogenic syncope, ③ arrhythmias and ④ mechanical obstruction to cardiac output, ⑤ PE , ⑥ cardiac tumors, ⑦ valvular diseases

⑧ - Non-cardiovascular causes (seizures , cva ...)

cerebro
- vascular
- accident

- In patients who present with syncope, ask about:

- circumstances of the event and any preceding symptoms: palpitation, chest pain, lightheadedness, nausea, tinnitus,
- sweating or visual disturbance
- duration of loss of consciousness, appearance of the patient while unconscious and any injuries sustained (a detailed witness history is extremely helpful)
- time to recovery of full consciousness and normal cognition
- frequency of episodes and impact on lifestyle
- possible contributing medications, such as antihypertensive agents (Box 4.7).
- current driving status, including occupational driving.

* If the pt. has palpitation or chest pain, this goes w/ cardiovascular causes. BUT if has symptoms of aura, this goes with seziures.

very imp

عني تسألي الناس يلي حوالين المريض شو إلي بشافوه ·

and ask about the situation of the pt. after recovery

Edema

* Unilateral
① DVT ② lymphedema
③ cellulitis

* Bilateral
* systemic causes
eg: Renal failure
① Hypoalbuminemia
② Hepatic failure
③ Heart failure
④ chronic venous ds.
⑤ drugs as VD Ca^{2+} channel blockers (amlodipine) → dihydropyridine

5 • **Oedema**

- unilateral vs bilateral
- gravity dependant (ankles , sacrum)
- Heart failure , chronic venous disease, vasodilating calcium channel antagonists (such as amlodipine) and hypoalbuminaemia.
- An elevated jugular venous pressure strongly suggests a cardiogenic cause of oedema.
- Enquire about other symptoms of fluid overload, including dyspnoea, orthopnoea and abdominal distension → to know the extent of edema (is it confined to the lower limbs or there is a systemic problem that caused this edema.

لازم تسأل عن كل الأمراض
اللي صاحبته ~~[illegible]~~ من قبل
سواء إلها علاقة بالـ CVS
أو لا لا.

- **Past medical history**
- Obtaining a detailed record of any previous cardiac disease,
- investigations and interventions is essential (eg: cathetrization / ECO cardio-gram)
- conditions associated with increased risk of vascular disease such as hypertension, diabetes mellitus and hyperlipidaemia
- rheumatic fever or heart murmurs during childhood
- potential causes of bacteraemia in patients with suspected infective endocarditis, such as skin infection, recent dental work, intravenous drug use or penetrating trauma
- systemic disorders with cardiovascular manifestations such as connective tissue diseases (pericarditis and Raynaud's phenomenon), Marfan's syndrome (aortic dissection) and
- myotonic dystrophy (atrioventricular block).

associated with

- **Drug history**
  - Drugs may cause or aggravate symptoms such as breathlessness, chest pain, oedema, palpitation or syncope (see Box 4.7).
  - Ask about 'over-the-counter' purchases, such as non-steroidal anti-inflammatory drugs (NSAIDs) and alternative and herbal medicines, as these may have cardiovascular actions.

* NSAIDs & steroids can cause fluid overload and decompensation of the pt. with chronic heart failure

لو حكالك المريض إنه إلي ابن عم حط stents (دعامات)
على عمر الـ 40 سنة. (هل لازم تشيك بوجود الـ Premature coronary art. dz؟)
← الجواب: لا ✗ لأنه من الـ 1st degree relatives

- **Family history**
- Many cardiac disorders such as cardiomyopathies have a genetic component.
- Ask about premature coronary artery disease in first-degree relatives (< 60 years in a female or < 55 years in a male);
- sudden unexplained death at a young age may raise the possibility of a cardiomyopathy or inherited arrhythmia. → (Wolff-Parkinson White syndrome) → these pts. have irregularity of the electrical system of the heart
- Patients with venous thrombosis may have inherited thrombophilia, such as a factor V Leiden mutation.
- Familial hypercholesterolaemia is associated with premature arterial disease

مهم جدا تلتزمي بالفئة العمرية هون

• Social history

- Smoking is the strongest risk factor for coronary and peripheral arterial disease. Take a detailed smoking history.
- Alcohol can induce atrial fibrillation and, in excess, is associated with obesity, hypertension and dilated cardiomyopathy.
- Recreational drugs such as cocaine and amphetamines can cause arrhythmias ,chest pain, occlusive and aneurysmal peripheral arterial disease and even myocardial infarction .
- Impact on daily activity and employment .

* calculate it in a pack year.

* Pack-year = (# Packs / day) x (# years)

تحاتوت

كم سنة مدخن × كم pack باليوم الواحد

* Note that 20 cigrattes = 1 pack