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Cardiovascular Examination: The Basics

The following presents a simplified version of the Cardiovascular Examination. For more information, refer to Talley & O Connor (full version) pp 26-97. Note that a lot of information is presented in these pages, a 2nd concise version will be constructed as well. Concentrate on the basics, using the summary at the end of the chapter. Sometimes your lecture notes will help as well but I did not find them very useful at all.

Major Symptoms (Talley & O Connor pp 26)

Some of the major symptoms that your patient may present include:

- Chest Pain, Dyspnoea (Orthopnea, Paroxysmal Nocturnal Dyspnoea), Ankle Swelling, Palpitations (perceived sense of irregular heart beat), Syncope, Intermittent Claudication, Fatigue

Risk Factors for coronary heart disease (Talley & O Connor pp 31)

Briefly risk factors include:

- Previous history of ischaemic heart disease
- Hypercholesteremia (serum cholesterol > 5.2mmol/L, HDL < 1.0mmol/L)
- Smoking
- Hypertension
- Family history of CHD
- History of diabetic mellitus

The above information is just a summary for completeness. It is often helpful to know the background of the major Cardiovascular diseases (mainly CHD).

THE CARDIOVASCULAR EXAMINATION

As with all examinations, practice is the key. Go through each of these steps and practice on someone else. Internalisation not memorisation is the key to knowing all examinations.

Positioning the patient

45° angle

General Appearance

- Look at patient from distance, observe for about 30sec-1 min → scars, enlargement of chest, ill??
- Respiration (RR = 60/time btw breaths), laboured, tachypnoea?
- Cachexia
- Check for Marfan's (disproportionate limb length to body), Turners (webbing of neck), and Down syndrome

Hands

- RH: nails → clubbing (↑ soft tissue), loss of nail bed angle??, compress proximal nail bed – rock (enlarged distal phalanx??), splinter haemorrhages (infective endocarditis)??, Janeway lesions (infective endocarditis)??, Tendon xanthomata (yellow/orange deposits of lipid on tendons of dorsum of hand → Type II hyperlipidemia)??, Palmar & Tuberoeruptive Xanthomata (Bumps on knee, elbow → Type III hyperlipidemia)??.
- Peripheral Cyanosis (bluish discolouration of skin, palmar lines → ↑ reduced haemoglobin due to abnormal high amounts of O₂ usage by tissues)
- **Same with left hand!**

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Arterial Pulse

- Radial pulse
 - (rate → 2*30secs, rhythm → regular/irregular, regularly irregular → Wenckebach rhythm, radio-femoral delay → aortic coarctation (narrowing), radio-radial delay → atherosclerosis/aneurysm in upper limb arteries)??
- Character/Volume:
 - Not well represented in peripheral pulses (consider brachial or carotid pulses)
- Water pipe slamming pulse upon lifting of arm → **classic aortic regurgitation**

Blood Pressure (Lying and standing)

- Wrap cuff around upper arm → locate brachial pulse (1/3 of distance from medial epicondyle)
- Approximation of systolic blood pressure → inflate cuff and deflate slowly until radial pulse returns → **systolic blood pressure**
- Place diaphragm over brachial artery → 5 different Korotkoff sounds (1-5)
 - 1 – sound first heard → **systolic blood pressure**
 - 2 - ↑ sound
 - 3 - ↓ sound
 - 4 – muffled sound
 - 5 – sound disappears → **diastolic pressure**
- **Note: Pulsus Paradoxus → Paradoxical pulse rate increase during inspiration due to decreased left ventricular filling, therefore decreased systolic and diastolic pressures)**
- Postural hypotension defined as: more than 15mmHg in systolic, and 10mmHg in diastolic pressure upon standing.

Face

- Inspect sclerae (white coat of eye) → Jaundice (yellow discolouration → congestive cardiac failure, hepatic congestion)??,
- Xanthelasma (yellow cholesterol deposits under eye → Type II/II hyperlipidemia), Mitral facies (rosy cheek + bluish tinge → dilatation of malar capillaries → mitral stenosis (PH, low CO)).
- Mouth, torch → high arch palate (Marfan's Syndrome)??, teeth (diseased → infective endocarditis)??, tongue + lips → central cyanosis → ↑ reduced haemoglobin due to problems with oxygenation, petechia (red spot due to escaped blood → infective endocarditis).

Neck

- Carotid arteries (medial to SCM):
 - Feel pulse, character of pulse (compare to wave form → very difficult), mainly evaluating LV fⁿ
- JVP (45°, good light, flickers twice):
 - Mainly evaluating RS fⁿ
 - IJ (medial), EJ (lateral): RA 5 cm below Sternal angle
 - **Height:** If > 3cm → right heart filling pressure raised → sign of RV failure/volume overload

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- **Character:** (a, c, v): difficult to assess, *abdominojugular reflex*: *press firmly over middle of abdomen for 15 secs* → JVP ↑ transiently then ↓, if not → RV failure.

Precordium Examination

- **Inspection:**
 - Scars??, chest abnormalities??, pacemaker/cardioverter defibrillator box??, look for apex beat??
- **Palpation:**
 - Palpate apex beat (5th intercostal mid clavicular → most lateral + inferior point at which palpating fingers are raised with each systole, not ANATOMICAL apex), **easier to find sometimes when patient leans on side**, displacement (enlarged heart)??, dextrocardia??, parasternal impulse??, thrills (apex, left sternal edge, base of heart!)
- **Percussion:**
 - Locate 5th intercostal space: palpate from anterior axillary line towards sternum.
 - Palpate vertically across chest to see resonant, dull varieties of sounds.
- **Auscultation (Palpate carotid → 2nd heart sound):**
 - Auscultate the mitral valve using bell of stethoscope → mitral stenosis (apply lightly)
 - Auscultate mitral valve using diaphragm of stethoscope → mitral regurg. (apply densely)
 - Auscultate tricuspid valve, aortic valve, pulmonary valve
- **Dynamic auscultation is not necessary for the most part but check with tutor!**

Back

- Scars??, deformity??, sacral oedema (RH failure)??, pleural effusion (percuss → dull), LV congestion (auscultate → congestion in pulmonary capillaries).

Abdomen

- Lay patient flat, observe abdomen, enlarged tender liver (RH failure)??, pulsative liver??, ascites??, splenomegaly (infective endocarditis)??, pulsate aorta (don't rule out aortic aneurysm)??

Lower Limbs (both limbs)

- Femoral arteries pulsation??, auscultation?? (bruit → murmur), popliteal pulsation, posterior tibial (under medial malleolus), dorsalis pedis (forefoot)
- Gently compress distal tibia (oedema, pitting → indented skin, check upper levels)??, cyanosis clubbing of toes??
- Check for peripheral vascular disease (reduced/absent pulse, femoral bruit, leg pallor, cool skin etc) → Buerger's test: 45° (check pallor), then hang 90° over bed → check cyanosis (**Check tutor if this is all necessary**)
 - The above tests for poor arterial supply, impaired arterial supply
- Tender calves, buttocks etc (DVT).

Thank the patient!