***Introductory Course***

***1- Common symptoms of heart disease***

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| ***Symptoms*** | ***Cardiovascular causes*** | ***Other causes*** |
| Chest discomfort  | Myocardial infarction Angina Pericarditis Aortic dissection  | Oesophageal spasm Pneumottorax Musculoskeletal pain  |
| Breathlessness  | Heart failure Angina Pulmonary embolism Pulmonary Hypertension  | Respiratory disease Anemias Obesity Anxiety  |
| Palpitation  | Tachyarrhythmias Ectopic beats  | Anxiety Hyperthyroidism Drugs  |
| Syncopedizziness  | Arrhythmias Postural hypotension Aortic stenosis Hypertrophic obstructive cardiomyopathy Atrial myxoma  | Simple faints Epilepsy Anxiety  |
| Dedema  | Heart failure Constructive pericarditis Venous stasis  | Nephrotic syndrome Liver disease Drugs Immobility |

***2- Cardiovascular causes of chest pain***

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| ***Type***  | ***Cause***  | ***Characteristics***  |
| Type angina  | Coronary artery disease Aortic stenosis Hypertrophic cardiomyopathy  | Precipitated by exertion, eased by rest and/or glyceryl trinitrate; characteristic distribution  |
| Myocardial infraction  | Coronary artery occlusion  | Similar sites to angina; more severe, persists at rest |
| Pericarditis pain  | Pericarditis  | Sharp, raw or stabbing; varies with movement or breathing  |
| Aortic pain  | Dissection of the aorta  | Severe, tearing, sudden onset, radiates to the back  |

***3- Factor aggravating or relieving angina***

**Aggravating:**

* Exertion
* Emotional excitement
* Cold weather
* Exercise after meals

**Relieving:**

* Rest
* Glyceryl trinitrate
* Warm-up before exercise

***4- Differential diagnosis: angina VS myocardial infarction***

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| ***Factor***  | ***Angina***  | ***Myocardial infarction***  |
| Site  | Retrosternal; radiates to arm, epigastrium, neck | Retrosternal; radiates to arm, epigastrium, neck |
| Precipitated | By exercise or emotion | Often spontaneous |
| Relieved  | By rest, nitrates  | Not by rest or nitrates  |
| Anxiety  | Absent or mild  | Severe  |
| Sympathetic activity  | None  | Increased  |
| Nausea or vomiting  | Unusual  | Common  |

***5- Characteristic of pericarditis pain***

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| ***Factor***  | ***Characteristic***  |
| Site  | Retrosternal; may radiate to left shoulder or back |
| Prodrome  | May be preceded by a viral illness |
| Onset  | No obvious initial precipitating factor; tends to fluctuate in intensity |
| Nature  | May be stabbing or 'raw' - 'like sandpaper' often described as sharp, rarely as tight or heavy |
| Made worse  | By changes in posture, respiration  |
| Relieved  | By analgesics, especially non – steroidal anti-inflammatory drugs (NSAIDs) |
| Accompanied  | By pericardial rub  |

***6- Surface markings of the arterial pulses***

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| ***Factor***  | ***Characteristic***  |
| Artery  | Surface marking  |
| Radial  | At the wrist, lateral to the flexor carpi radialis tendon  |
| Brachial  | In the antecubital fossa, medial to the biceps tendon  |
| Carotid  | At the angle of the jaw, anterior to the sternocleidomastoid muscle  |
| Femoral  | Just below the inguinal ligament, midway between the anterior superior iliac spine and the pubic symphysis (the mid-inguinal point). It is immediately lateral to the femoral vein and medial to the femoral nerve  |
| Popliteal  | Lies posteriorly in relation to the knee joint, at the level of the knee crease, deep in the popliteal fossa  |
| Posterior tibial  | Located 2 cm below and posterior to the medial malleolus, where it passes beneath the flexor retinaculum between flexor digitorum longus and flexor hallucis longus  |
| Dorsalis pedis  | Passes lateral to the tendon of extensor hallucis is longus and is best felt at the proximal extent of the groove between the first and second metatarsals. It may be absent or abnormally sited in 10% of normal subjects, sometimes being 'replaced' by a palpable perforating peroneal artery  |

***7- Causes of a fast or slow pulse***

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|  ***Heart rate***  | ***Sinus rhythm***  | ***Arrhythmia***  |
| Fast (tachycardia, > 100/min) | Exercise Pain Excitement/anxiety Fever Hyperthyroidism Medication:  Sympathomimetics  Vasodilators  | Atrial fibrillation Atrial flutter supraventricular tachycardia Ventricular tachycardia  |
| Slow (bradycardia, < 60/min) | Sleep Athletic trainingHypothyroidism Medication: β-blockers Digoxin Verapamil,Diltiazem  | Carotid sinus hypersensitivitySick sinus syndrome Second-degree heart blockComplete heart block  |

***8- Causes of an irregular pulse***

|  |  |
| --- | --- |
| * Sinus arrhythmia.
* Atrial extrasystoles
* Ventricular extrasystoles
* Atrial fibrillation
 | * Atrial flutter with variable response
* Second-degree heart block with variable response
 |

***9- Common causes of atrial fibrillation***

|  |  |
| --- | --- |
| * Hypertension
* Heart failure
* Myocardial infarction
* Thyrotoxicosis
* Alcohol-related heart disease
 | * Mitral valve disease
* Infection, e.g. respiratory, urinary
* Following surgery, especially cardiothoracic surgery
 |

***10- Causes of increased pulse volume***

|  |  |
| --- | --- |
| ***Physiological:**** Exercise
* Pregnancy

***Pathological:*** * Peripheral vascular disease
* Hypertension
* Fever
* Thyrotoxicosis
 | * Increased environmental temperature
* Advanced age
* Anaemia
* Aortic regurgitation
* Paget’s disease of bone
* Peripheral AV shunt
 |

***11- Differences between carotid and jugular pulsation***

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| ***Carotid***  | ***Jugular***  |
| Rapid outward movement | Rapid inward movement |
| One peak per heartbeat | Tow peak per heartbeat (in sinus rhythm) |
| Palpable | Impalpable  |
| Pulsation unaffected by pressure at the root of the neck  | Pulsation diminished by pressure, at the root of the neck  |
| Independent of respiration  | Height of pulsation varies with respiration  |
| Independent of position of patient  | Varies with position of patient  |
| Independent of abdominal pressure  | Rises with abdominal pressure  |

***12- British Hypertension Society classification of blood pressure level***

|  |  |  |
| --- | --- | --- |
| ***blood pressure***  | ***Systolic BP (mmHg)*** | ***Diastolic BP (mmHg)*** |
| Optimal  | < 120 | < 80 |
| Normal  | < 130 | < 85 |
| High normal  | 130-139 | 85-89 |
| **Hypertension**  |  |  |
| Grade 1 (mild)  | 140-159 | 90-99 |
| Grade 2 (moderate)  | 160-179 | 100-109 |
| Grade 3 (severe)  | > 180 | > 110 |
| **Isolated systolic hypertension**  |  |  |
| Grade 1  | 140-159 | < 90 |
| Grade 2 | > 160 | < 90 |

***13- Grades of intensity of murmur***

|  |  |
| --- | --- |
| Grade 1  | Heard by an expert in optimum conditions  |
| Grade 2 | Heard by a non-expert in optimum conditions  |
| Grade 3 | Easily heard; no thrill  |
| Grade 4 | A loud murmur, with a thrill  |
| Grade 5 | Very loud, often heard over wide area, with thrill  |
| Grade 6 | Extremely loud, heard without stethoscope  |

***14- Cardiac auscultation: the best sites for hearing abnormality***

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| ***Site*** | ***Sound*** |
| Cardiac apex  | First heart soundThird and fourth heart soundsMid-diastolic murmur of mitral stenosis  |
| Lower left sternal border  | Early diastolic murmurs of aortic and tricuspid regurgitation  |
| Upper left sternal border  | Second heart sound. Opening snap of mitral stenosisPulmonary valve murmursPansystolic murmur of ventricular septal defect  |
| Upper right sternal birder  | systolic ejection (outflow) murmurs, e.g. aortic stenosis, hypertrophic obstructive cardiomyopathy  |
| Left axilla  | Radiation of the pansystolic murmur of mitral regurgitation  |
| Below left clavicle  | Continuous 'machinery' murmur of a persistent patent ductus arteriosus  |

***15- Abnormalities of intensity of the first heart sound***

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| **Quiet** * Low cardiac output
* Poor left ventricular function
 | * Long P-R interval (first – degree heart block)
* Rheumatic mitral regurgitation
 |
| **Loud** * Increased cardiac output
* Large stroke volume
* Mitral stenosis
 | * Short P-R interval
* Atrial myxoma (rare)
 |
| **Variable** * Atrial fibrillation
* Extrasystoles
 | * Complete heart block
 |

***16- Differential diagnosis: angina VS oesophageal pain***

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| --- | --- | --- |
| ***Factor***  | ***Angina***  | ***Oesophageal pain***  |
| Site  | Retrosternal; radiates to arm and jaw  | Retrosternal or epigastric; sometimes radiates to arm or back  |
| Precipitated  | Usually by exertion  | Can be worsened by exertion, but often present at other times  |
| Relieved  | Rapidly relieved by rest, nitrates  | Not rapidly relieved by rest; often relieved by nitrates  |
| Wakes patient from sleep  | Seldom  | Often  |
| Relation to heartburn  | None (but patients often have “wind”) | Sometimes  |
| Duration  | Typically 2-10 minutes  | Variable  |