



CARDIOVASCULAR SYSTEM (CVS) - II MODULE

MBBS Year-3 (Academic Year 2020-2021)

KMU Central Curriculum Committee

Khyber Medical University, Phase V, Hayatabad | Peshawar

Themes for CVS-II Module

SNo.	Theme Title	Week
Theme 1	Chest Pain	2
Theme 2	Blood pressure	1
Theme 3	Shortness of breath	2

Subject	TOPIC	S. No	Learning objectives At the end of this module, students of year 3 will be able to:
Theme 1: Chest pain			
Anatomy	Gross anatomy of heart, valves and coronary arteries	1	Describe surface anatomy of the heart and heart valves
		2	Describe the anatomy of coronary circulation
		3	Enumerate heart valves and describe their gross morphology
Biochemistry	Lipoproteins and cholesterol	4	Classify and Describe types of lipoproteins
		5	Summarize cholesterol synthesis
Pathology	Atherosclerosis	6	Discuss the risk factors, Morphology, pathological changes and consequences of Atherosclerotic plaque
	Ischemia and infarction	7	Define Ischemia and infarction, and differentiate it from infarction
		8	Discuss Classification and pathophysiology of ischemic heart disease
		9	Discuss pathophysiology of myocardial infarction
Pharmacology	Antianginal drugs	10	Classify antianginal drugs
		11	Explain mechanism of action, pharmacokinetics and adverse effects of organic nitrates and calcium channel blockers
		12	Explain the rationale for use of β -adrenergic blockers and sodium channel blocker in the management of angina pectoris
	Lipid lowering drugs	13	Briefly describe the types of dyslipidemias

		14	List the lipid lowering drug classes
		15	Explain the mechanism of action, effect on serum lipid profile and adverse effects of each of the five drug classes
		16	Discuss drug-drug interaction of lipid lowering drugs
	Anticoagulant drugs	17	Classify anticoagulant drugs
		18	Discuss mechanism of action, uses of Unfractionated heparin
		19	Compare low molecular weight and unfractionated heparin
		20	Describe adverse effects of heparin and treatment of heparin overdose
		21	Describe mechanism of action and uses of direct Xa and IIa inhibitors
		22	Describe mechanism of action and uses of warfarin
		23	Describe adverse effects of warfarin and treatment of warfarin overdose
		24	Compare heparin and warfarin in terms of mechanism and onset of action
		25	Explain monitoring of anticoagulant therapy
		26	Describe important diet and drug interactions of warfarin
	Antiplatelet and thrombolytic drugs	27	Classify antiplatelet drugs
		28	List indications of antiplatelet therapy
		29	Explain the mechanism of action and adverse effects of each antiplatelet drug group
		30	Name thrombolytic drugs and explain their mechanism of action, uses and adverse effects
Forensic Medicine	Chest trauma	31	Describe heart injuries caused by regional injuries
		32	Discuss chest wall injuries in general
		33	Enumerate the complications of rib fracture

	Sudden death	34	Define sudden death
		35	Explain the causes of sudden death
		36	Describe autopsy findings in sudden death
		37	Describe the medicolegal importance of sudden death
Community Medicine	cardiovascular diseases as public health issues	38	Define Cardiovascular disease(CVD)
		39	Elaborate the concept of CVD risk stratification
		40	Describe the epidemiology of cardiovascular diseases and explain cardiovascular diseases of Public Health importance globally and in Pakistan
		41	Explain the known risk factors of CVD and cultural, racial and gender difference in CVD prevalence and incidence
General Medicine/Cardiology	Coronary Heart disease	42	Discuss CAD risk factors and strategies to reduce them
		43	Discuss strategies for primary and secondary prevention of CHD in outpatient setting
		44	Define chronic stable angina, its clinical signs and symptoms, laboratory findings, imaging techniques for assessment of it and management protocols
		45	Discuss coronary vasospasm and angina with normal coronary angiograms
	Acute coronary syndrome	46	Define Acute coronary syndrome.
		47	Explain the spectrum of illness in ACS and relevant management steps
		48	Describe the clinical features and steps of the management of Myocardial infarction
		49	Describe risk stratification in myocardial infarction
		50	Describe complications of acute MI
	Hypertrophic cardiomyopathy	51	Discuss clinical features, imaging protocols, risk stratification and short/long-term management of hypertrophic cardiomyopathy.

Theme 2: Blood Pressure			
Pathology	Blood pressure	52	Describe the mechanisms of blood pressure regulation
	Shock	53	Classify shock
		54	Describe the pathophysiology and types of shock
		55	Describe the stages of shock
	Hypertension	56	Describe the causes, Pathogenesis, morphology and complications of Hypertension
		57	Discuss pathophysiology of hypertension in pregnancy
	Low Blood pressure	58	Define sepsis and septic shock
		59	Discuss causes, pathogenesis, and laboratory findings in shock
		60	Discuss Disseminated intravascular coagulation in the context of sepsis
		61	Describe classification and pathophysiology of Hemorrhage
	Aneurisms	62	Describe the etiology, morphology and manifestations of vascular aneurisms
		63	Describe the causes, Pathogenesis and types of Aortic Aneurysm
	Aortic dissection	64	Describe the pathogenesis, morphology and clinical features of Aortic Dissection
	Vasculitis	65	Define vasculitis
		66	Classify vasculitides
		67	Describe the immunological mechanisms of non-infectious vasculitis
		68	Describe the morphology and clinical features of Giant cell arteritis
		69	Describe the morphology and clinical features of Takayasu arteritis
		70	Describe the morphology and clinical features of Polyarteritis nodosa
		71	Describe the morphology and clinical features of Kawasaki disease
		72	Describe the morphology, serological markers and clinical features of Wegener granulomatosis

		73	Describe the morphology and clinical features of Thromboangitis obliterans
	Diseases of veins	74	Differentiate between thrombophlebitis and Phlebothrombosis
		75	Describe the etiology and clinical features of varicose veins
		76	Enlist the benign and malignant tumors of the arteries and veins
Pharmacology	Antihypertensive drugs	77	Classify antihypertensive drugs
		78	Discuss role of diuretics in the management of hypertension
		79	Discuss the role of ACE inhibitors, Angiotensin receptor-blocking agents, Renin inhibitor in hypertension
		80	Explain the rationale for the use of β -blockers, α -adrenoceptor blocking agent, centrally acting sympatholytic drugs in hypertension
		81	Describe the direct vasodilators (mechanism of action and drug toxicity) in relation to antihypertensive drug therapy
		82	Describe the role of Calcium channel blockers in hypertension
General Medicine/Cardiology	Hypertension	83	Define and classify hypertension
		84	Discuss drug treatment protocols for hypertension
		85	Describe the risk factors and complications of hypertension
		86	Describe the management of hypertensive emergencies and urgencies
Forensic medicine	Cardiac poisons	87	Classify Cardiac Poisons
		88	Describe the characteristic, clinical signs/symptoms, treatment and medicolegal aspects of cardiac glycosides
		89	Discuss cardiac effects of methylphenidate, cocaine and Ice
		90	Describe the characteristic, clinical signs/symptoms, treatment and medico legal aspects of Oleander

Theme 3: Shortness of breath			
Physiology	Cardiac cycle	91	Outline major events in cardiac cycle
		92	Discuss physiology of heart sounds and murmurs
Pathology	Congestive heart failure	93	Describe the types, etiology, pathogenesis, and clinical features of congestive heart failure
	Congenital heart diseases	94	Describe the Etiology, Pathogenesis and clinical features of Tetralogy of Fallots, ASD, VSD and pulmonary stenosis
	Valvular heart diseases	95	Describe the Etiology, pathogenesis and clinical features of Aortic stenosis, Aortic regurgitation, Mitral stenosis and Mitral regurgitation
	Cardiomyopathies	96	Describe the Pathological patterns, causes, morphological changes and clinical features of Cardiomyopathies
	Rheumatic fever	97	Discuss pathophysiology and laboratory findings in rheumatic fever
	Rheumatic heart disease	98	Discuss pathological changes and morphology of rheumatic heart disease
	Thrombosis and Embolism	99	Describe the mechanism and pathogenetic mechanisms of vascular thrombosis
		100	Enlist hypercoagulable states
		101	Define embolism
		102	Discuss types of embolism
		103	Describe the etiology, pathogenesis, morphology and clinical features of pulmonary embolism
	Endocarditis	104	Discuss Etiology, Pathogenesis, Morphology, diagnostic criteria, clinical features and complications of infective endocarditis
		105	Discuss the types of non-infected vegetation
Pharmacology	Drugs used in heart failure	106	Define the different classes of the drug used in the treatment of heart failure
		107	Explain the pharmacological effects, clinical uses, adverse effects and drug interactions of digitalis glycosides

		108	Explain the signs symptoms and treatment of digoxin overdose
		109	Enlist positive inotropic drugs (other than digoxin) that are used in heart failure
		110	Classify the five major groups of diuretic drugs and relate them to their site of action
		111	Discuss the mechanism of action, clinical applications and adverse effects of carbonic anhydrase enzyme inhibitors, osmotic diuretics, thiazide diuretics, loop diuretics and potassium sparing diuretics
		112	Enlist potassium sparing and potassium losing diuretics
	Antiarrhythmic drugs	113	Classify antiarrhythmic drugs
		114	Describe the effect of different classes of antiarrhythmic drugs on membrane potential of cardiomyocytes
		115	Explain the mechanism of action of all the classes of antiarrhythmic drugs
		116	Discuss the adverse effects and clinical uses of antiarrhythmic drugs
General Medicine/Cardiology	Heart failure	117	Discuss workup and management of pulmonary edema
		118	Enlist and explain causes of heart failure
		119	Describe workup and management of heart failure
	Disorders of heart rate and rhythm	120	Classify arrhythmias and heart blocks
		121	Describe the etiology, ECG findings and management of Atrial fibrillation
		122	Discuss types, workup and management of ventricular arrhythmias
	Pulmonary embolism	123	Describe the etiology, clinical features and diagnostic workup of pulmonary embolism
		124	Discuss risk stratification and management of pulmonary embolism
	Pulmonary hypertension	125	Discuss cardiac causes of pulmonary hypertension and outline their management
	Myocarditis	126	Discuss causes and management of myocarditis
	Pericardial diseases	127	Define and classify pericarditis

		128	Discuss clinical findings and treatment of pericarditis
		129	Describe the etiology and management of pericardial effusion
Pediatrics	Cyanotic and acyanotic congenital heart disease	130	Delineate the difference between the acyanotic and cyanotic heart disease conditions
		131	Enumerate the various defects, involving both conditions
	Rheumatic fever	132	Describe the etiology of rheumatic fever
		133	Describe Duckett Johns criteria for diagnosis of RF
		134	Discuss about primary and secondary prophylaxis of rheumatic heart disease
Practical work			
Pharmacology	Myocardial Infarction	135	Construct a prescription for a patient with Myocardial Infarction
	Hypertension	136	Construct a prescription for a patient with Hypertension
	Congestive Cardiac Failure	137	Construct a prescription for a patient with Congestive Cardiac Failure
Pathology	Lipid Profile	138	Demonstrate Estimation of total cholesterol
	Hemangioma	139	Identify the morphological changes occurring in hemangioma
Forensic medicine	Cardiac toxins	140	Identify the following cardiogenic toxins: <ul style="list-style-type: none"> • Digitalis • Cannabis • Heroin