**MODULE 7 FLASHCARDS**

### Cardiovascular Emergencies

#### 1. Introduction to Cardiovascular Emergencies

* Q: What is the leading cause of death in America?  
  A: Cardiovascular disease, causing about 1 in 3 deaths.
* Q: How can EMS help reduce cardiovascular deaths?  
  A: Promote healthy lifestyles, ensure early access to care, train more people in CPR, use new dispatch technology, provide public defibrillation access, and recognize the need for advanced life support.

#### 2. Anatomy and Physiology of the Heart

* Q: What are the upper and lower chambers of the heart called?  
  A: Atria (upper) and ventricles (lower).
* Q: Which ventricle is stronger and why?  
  A: The left ventricle; it pumps blood to the entire body.
* Q: What initiates the heart's electrical signal?  
  A: The SA (sinoatrial) node.
* Q: Define cardiac output. (CO)  
  A: The amount of blood the heart pumps in one minute.

#### 3. Pathophysiology: Atherosclerosis and ACS

* Q: What is atherosclerosis?  
  A: Plaque buildup inside arteries, leading to blocked blood flow.
* Q: What is acute coronary syndrome (ACS)?  
  A: Symptoms caused by heart ischemia, including unstable angina and AMI (Acute Myocardial Infarction)
* Q: Describe angina pectoris.  
  A: Crushing/squeezing chest pain due to insufficient oxygen, lasting 3–8 minutes, often relieved by rest or nitroglycerin.
* Q: What are signs of an AMI?  
  A: Chest pain (may radiate to jaw/arms), nausea, sweating, irregular heartbeat, shortness of breath, and sudden death.

#### 4. Consequences of AMI

* Q: What are the three major problems after an AMI?  
  A: Sudden death (from dysrhythmias), cardiogenic shock, and congestive heart failure (CHF).
* Q: What is ventricular fibrillation (VF)?  
  A: A lethal rhythm where ventricles quiver, preventing blood pumping; treated with defibrillation.
* Q: Describe cardiogenic shock.  
  A: The heart can’t pump enough blood, causing pale skin, anxiety, fast pulse, and low BP (late sign).
* Q: What are signs of CHF?  
  A: Dyspnea (worse when lying flat), crackles in lungs, swollen neck veins/ankles, and frothy sputum.

#### 5. Hypertensive Emergencies and Aortic Aneurysms

* Q: What defines a hypertensive emergency?  
  A: Systolic BP >180 mmHg with symptoms like severe headache, nausea, or altered mental status.
* Q: What is a dissecting aortic aneurysm?  
  A: Separation of aortic layers, causing sudden severe pain; may present with unequal arm BPs.

#### 6. Patient Assessment

* Q: What does OPQRST stand for in history-taking?  
  A: Onset, Provocation, Quality, Radiation, Severity, Time.
* Q: What are key steps in primary assessment?  
  A: Check responsiveness (AVPU), airway, breathing, circulation (ABC), skin color, pulses, and oxygen needs.

#### 7. Emergency Care for Chest Pain

* Q: What are general care steps for chest pain?  
  A: Position comfortably (often sitting), loosen clothes, give oxygen, administer aspirin (if no contraindications), and consider nitroglycerin.
* Q: When is nitroglycerin contraindicated?  
  A: If systolic BP <100 mmHg, recent ED drug use, or max dose given.

#### 8. Cardiac Arrest and AED Use

* Q: What is the chain of survival?  
  A: Call EMS → CPR → Defibrillation → Advanced care → Hospital care → Recovery.
* Q: What rhythms are shockable by an AED?  
  A: Ventricular fibrillation (VF) and pulseless ventricular tachycardia (VT).

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### Respiratory Emergencies

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#### 9. COPD vs. CHF

* Q: How to differentiate COPD and CHF?  
  A:
  + COPD: Barrel chest, wheezing, pursed-lip breathing, history of smoking.
  + CHF: Crackles in lungs, dyspnea when lying flat, peripheral edema.
* Q: What is hypoxic drive?  
  A: In COPD, the brain relies on low oxygen (not high CO2) to regulate breathing; avoid high-flow O2.

#### 10. Respiratory Conditions

* Q: What is pulmonary edema?  
  A: Fluid in lungs (often from CHF), causing crackles, frothy sputum, and severe dyspnea.
* Q: Describe anaphylaxis.  
  A: Severe allergic reaction with airway swelling, hives, and shock; treat with epinephrine.
* Q: What is a pneumothorax?  
  A: Air in pleural space, causing lung collapse; symptoms include unilateral absent breath sounds.

#### 11. General Respiratory Care

* Q: What is the priority for carbon monoxide poisoning?  
  A: High-flow oxygen to displace CO from hemoglobin.
* Q: How to manage asthma?  
  A: Bronchodilators (e.g., albuterol), oxygen, and positioning.

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### 12. Nitroglycerin Administration

Q: What are the steps to administer nitroglycerin?  
A:

1. Obtain medical control permission.
2. Check BP (systolic ≥100 mmHg).
3. Verify medication expiration.
4. Place tablet/spray under the tongue.
5. Monitor BP and pain after 5 minutes.

### 13. Cardiac Monitoring (ECG)

Q: How do you prepare a patient for a 12-lead ECG?  
A: Clean/shave electrode sites, attach leads correctly, and ensure no interference (artifact).

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### 14. CABG vs. PTCA

Q: What is the difference between CABG and PTCA?  
A:

* CABG: Uses a graft to bypass blocked arteries.
* PTCA: Uses a balloon to open arteries (angioplasty).

### 15. Implanted Cardiac Devices

Q: How should you manage a patient with an AICD during an AMI?  
A: Treat like any AMI patient; avoid AED pads directly over the device.

### 16. LVADs (Left Ventricular Assist Devices)

Q: Why might an LVAD patient lack a palpable pulse?  
A: The device pumps blood continuously, often without a pulsatile flow.

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### 17. Asystole vs. PEA

Q: What distinguishes asystole from PEA?  
A:

* Asystole: Flatline (no electrical activity).
* PEA: Electrical activity but no pulse.

### 18. AED Use in Water

Q: Can you use an AED near water?  
A: No—dry the patient’s chest first to avoid conductivity hazards.

### 19. ROSC (Return of Spontaneous Circulation)

Q: What actions follow ROSC?  
A: Monitor breathing, give oxygen, check BP, and transport immediately.

### 20. Infectious Disease PPE

Q: What PPE is required for tuberculosis?  
A: N95 or HEPA mask (airborne precautions).

### 21. Influenza Transmission

Q: How is influenza transmitted?  
A: Direct contact or airborne droplets; use gloves, eye protection, and N95 mask.

### 22. HIV Exposure Risk

Q: What poses the highest HIV risk to EMTs?  
A: Needlesticks or contact with infected blood/bodily fluids.

### 23. Hepatitis B Prevention

Q: How can EMTs prevent hepatitis B?  
A: Vaccination and standard precautions (gloves, no sharps exposure).

### 24. Meningococcal Meningitis

Q: Why is meningococcal meningitis highly contagious?  
A: Spread via respiratory droplets; use masks and gloves.

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### 25. COPD Breath Sounds

Q: What breath sounds suggest COPD?  
A: Wheezing (narrowed airways) and prolonged expiration.

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### 26. Asthma Triggers

Q: What commonly triggers asthma attacks?  
A: Allergens, exercise, cold air, or stress.

### 27. Anaphylaxis Treatment

Q: What is the first-line treatment for anaphylaxis?  
A: Epinephrine (IM injection), oxygen, and antihistamines.

### 28. Pneumothorax Signs

Q: What are key signs of pneumothorax?  
A: Sudden dyspnea, unilateral absent breath sounds, and tracheal deviation (tension).

### 29. Pulmonary Embolism Symptoms

Q: What symptoms suggest a pulmonary embolism?  
A: Sudden dyspnea, pleuritic chest pain, tachycardia, and hypoxia.

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### 30. Hyperventilation Syndrome

Q: How does hyperventilation affect CO2 levels?  
A: Causes low CO2 (hypocapnia), leading to dizziness and tingling.

### 31. Carbon Monoxide Poisoning

Q: Why is CO poisoning deadly?  
A: Binds to hemoglobin 200x tighter than oxygen, causing tissue hypoxia.

### 32. CHF Positioning

Q: How should you position a CHF patient?  
A: Upright (sitting) to reduce pulmonary edema.

### 33. CPAP for Pulmonary Edema

Q: How does CPAP help pulmonary edema?  
A: Pushes fluid out of alveoli and improves oxygenation.

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### 34. Hypoxic Drive in COPD

Q: Why limit oxygen in some COPD patients?  
A: High O2 can suppress their hypoxic drive (backup breathing stimulus).

### 35. Barrel Chest Significance

Q: What does a barrel chest indicate?  
A: Chronic hyperinflation (e.g., COPD or emphysema).

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### 36. Pleural Effusion vs. Pneumothorax

Q: How to differentiate pleural effusion from pneumothorax?  
A:

* Effusion: Dull breath sounds, fluid on X-ray.
* Pneumothorax: Hyperresonance, absent breath sounds.

### 37. Digital Clubbing

Q: What does digital clubbing suggest?  
A: Chronic hypoxia (e.g., COPD, lung cancer).

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### 38. Aspirin in AMI

Q: Why give aspirin in AMI?  
A: Inhibits platelet clotting (162–324 mg chewable).

### 39. Silent MI

Q: What is a silent MI?  
A: AMI without classic chest pain (common in diabetics/elderly).

### 40. AED Pad Placement

Q: Where should AED pads be placed?  
A: Upper right sternum and left lateral chest (avoid pacemakers).

### 41. Chain of Survival

Q: List the chain of survival links.  
A:

1. Early EMS activation.
2. Immediate CPR.
3. Rapid defibrillation.
4. Advanced care.
5. Post-arrest care.

### 42. Right-Sided vs Left-Sided Heart Failure

Q: How do symptoms differ between right and left-sided heart failure?  
A:

* *Left-sided:* Pulmonary edema, crackles, dyspnea
* *Right-sided:* Peripheral edema, JVD, liver congestion

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### 43. Beck's Triad (Cardiac Tamponade)

Q: What are the three signs of cardiac tamponade?  
A: Hypotension, JVD, muffled heart sounds (Beck's Triad)

### 44. Commotio Cordis

Q: What causes commotio cordis?  
A: Blunt chest trauma during T-wave that triggers VF

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### 45. Hypertensive Urgency vs Emergency

Q: What distinguishes hypertensive emergency from urgency?  
A: Emergency has end-organ damage (e.g., AMI, stroke); urgency has high BP without damage

### 46. Aortic Dissection Pain

Q: How does aortic dissection pain typically present?  
A: Tearing/ripping pain radiating to back, unequal arm BPs

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### 47. S3 Heart Sound

Q: What does an S3 gallop indicate?  
A: Fluid overload/CHF (blood hitting stiff ventricle)

### 48. Cardiac Tamponade ECG

Q: What ECG finding suggests cardiac tamponade?  
A: Electrical alternans (varying QRS amplitude)

### 49. Osborn Wave

Q: What does an Osborn wave (J wave) on ECG indicate?  
A: Hypothermia

### 50. Wellens' Syndrome

Q: What ECG pattern suggests Wellens' syndrome (LAD occlusion)?  
A: Biphasic/inverted T waves in V2-V3

### 51. Brugada Syndrome

Q: What ECG pattern indicates Brugada syndrome?  
A: RBBB pattern with ST elevation in V1-V2

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### 52. COPD Oxygen Caution

Q: Why use caution with high-flow O2 in COPD?  
A: May suppress hypoxic drive (target SpO2 88-92%)

### 53. Kussmaul Respirations

Q: What do Kussmaul respirations indicate?  
A: Metabolic acidosis (deep, rapid breathing)

### 54. Cheyne-Stokes Breathing

Q: What conditions cause Cheyne-Stokes breathing?  
A: CHF, brain injury, or impending death

### 55. Pulmonary Embolism ECG

Q: What ECG findings suggest PE?  
A: S1Q3T3 pattern, tachycardia, RAD

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### 56. Tension Pneumothorax Signs

Q: What are late signs of tension pneumothorax?  
A: Tracheal deviation, hypotension, absent breath sounds

### 57. Cor Pulmonale

Q: What causes cor pulmonale?  
A: Chronic lung disease → right heart failure

### 58. Pulsus Paradoxus

Q: What does pulsus paradoxus >10mmHg indicate?  
A: Cardiac tamponade, severe asthma, or COPD

### 59. HACE (High Altitude Cerebral Edema)

Q: What are signs of HACE?  
A: Ataxia, confusion, headache (altitude sickness progression)

### 60. HAPE (High Altitude Pulmonary Edema)

Q: How does HAPE present?  
A: Dyspnea at rest, crackles, pink frothy sputum

### 61. Carbon Monoxide Pulse Ox

Q: Why is SpO2 misleading in CO poisoning?  
A: Pulse ox can't distinguish CO-Hb from O2-Hb (use CO-oximetry)

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### 62. ARDS (Acute Respiratory Distress Syndrome)

Q: What defines ARDS?  
A: Refractory hypoxia, bilateral infiltrates, non-cardiac pulmonary edema

### 63. Narcotic Overdose Triad

Q: What are the three signs of narcotic overdose?  
A: Pinpoint pupils, respiratory depression, coma

### 64. Flail Chest

Q: How does flail chest affect breathing?  
A: Paradoxical movement impairs ventilation

### 65. Traumatic Asphyxia

Q: What causes traumatic asphyxia?  
A: Severe chest compression → facial/conjunctival petechiae

### 66. R-on-T Phenomenon

Q: Why is R-on-T dangerous?  
A: May trigger VT/VF (PVC lands on T-wave)

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### 67. EKG Lead Groups

Q: Which leads view the inferior heart?  
A: II, III, aVF

### 68. STEMI Equivalents

Q: What EKG patterns are STEMI equivalents?  
A: Hyperacute T waves, Wellens', de Winter's T waves

### 69. Takotsubo Cardiomyopathy

Q: What is "broken heart syndrome"?  
A: Stress-induced apical ballooning mimicking STEMI

### 70. Dressler's Syndrome

Q: What causes Dressler's syndrome?  
A: Post-MI pericarditis (weeks after infarction)

### 71. HOCM (Hypertrophic Obstructive Cardiomyopathy)

Q: What worsens HOCM symptoms?  
A: Increased contractility (e.g., exercise, inotropes)

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### 72. WPW Syndrome (Wolff-Parkinson-White)

Q: What ECG findings indicate WPW syndrome?  
A: Short PR interval, delta wave, widened QRS

### 73. Digoxin Toxicity

Q: What are classic signs of digoxin toxicity?  
A: Nausea, visual disturbances (yellow halos), and ventricular dysrhythmias

### 74. Torsades de Pointes

Q: What electrolyte imbalance triggers Torsades?  
A: Hypomagnesemia and hypokalemia

### 75. Junctional Rhythm

Q: What is the hallmark of a junctional rhythm?  
A: Inverted P waves or absent P waves with HR 40-60 bpm

### 76. Beta Blocker Overdose

Q: How does beta blocker overdose present?  
A: Bradycardia, hypotension, hypoglycemia

### 77. Calcium Channel Blocker Toxicity

Q: What is the triad of CCB overdose?  
A: Hypotension, bradycardia, hyperglycemia

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### 78. Tricyclic Antidepressant Overdose

Q: What ECG findings suggest TCA overdose?  
A: QRS >100ms, R wave in aVR >3mm

### 79. Lithium Toxicity

Q: What are neurological signs of lithium toxicity?  
A: Tremors, ataxia, seizures, coma

### 80. Serotonin Syndrome

Q: What triad defines serotonin syndrome?  
A: Altered mental status, autonomic hyperactivity, neuromuscular abnormalities

### 81. Neuroleptic Malignant Syndrome

Q: How does NMS differ from serotonin syndrome?  
A: NMS has "lead pipe" rigidity and develops over days (vs hours)

### 82. Cholinergic Crisis

Q: What mnemonics describe cholinergic toxicity?  
A: SLUDGE (Salivation, Lacrimation, Urination, Defecation, GI upset, Emesis) and DUMBBELLS (Diarrhea, Urination, Miosis, Bradycardia, Bronchorrhea, Emesis, Lacrimation, Lethargy, Seizures)

### 83. Anticholinergic Toxicity

Q: What are classic signs of anticholinergic poisoning?  
A: "Hot as a hare, blind as a bat, dry as a bone, red as a beet, mad as a hatter"

### 84. Hemorrhagic vs Ischemic Stroke

Q: How to differentiate hemorrhagic from ischemic stroke in the field?  
A: Hemorrhagic often presents with thunderclap headache, vomiting, and rapid decline

### 85. Cushing's Triad

Q: What are the signs of increased ICP?  
A: Hypertension, bradycardia, irregular respirations (Cushing's triad)

### 86. Anterior vs Posterior Stroke

Q: What deficits suggest posterior circulation stroke?  
A: Vertigo, ataxia, visual field defects, crossed findings (e.g., face/arm on opposite sides)

### 87. Horner's Syndrome

Q: What triad defines Horner's syndrome?  
A: Ptosis, miosis, anhidrosis (ipsilateral)

### 88. Guillain-Barré Syndrome

Q: What are early signs of Guillain-Barré?  
A: Ascending paralysis, areflexia, possible respiratory failure

### 89. Myasthenia Gravis Crisis

Q: What distinguishes myasthenic crisis from cholinergic crisis?  
A: Myasthenic worsens with exertion; cholinergic has SLUDGE symptoms

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### 90. Thyroid Storm

Q: What are key signs of thyroid storm?  
A: Hyperthermia, tachycardia, agitation, possible heart failure

### 91. Addisonian Crisis

Q: How does adrenal insufficiency present acutely?  
A: Hypotension, hyperkalemia, hyponatremia, hyperpigmentation

### 92. DKA vs HHS

Q: How to differentiate DKA from HHS?  
A: DKA has ketosis (Kussmaul respirations, fruity breath); HHS has higher glucose but no acidosis

### 93. Compartment Syndrome

Q: What are the 6 P's of compartment syndrome?  
A: Pain, Pallor, Paresthesia, Paralysis, Pulselessness, Poikilothermia

### 94. Rhabdomyolysis

Q: What triad defines rhabdomyolysis?  
A: Myalgia, weakness, tea-colored urine (myoglobinuria)

### 95. Necrotizing Fasciitis

Q: What are early signs of necrotizing fasciitis?  
A: Pain out of proportion, skin discoloration, crepitus

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### 96. Tetanus

Q: What are classic signs of tetanus?  
A: Trismus (lockjaw), risus sardonicus, opisthotonus

### 97. Rabies

Q: What are late signs of rabies?  
A: Hydrophobia, aerophobia, autonomic instability

### 98. Hemophilia A vs B

Q: How to distinguish hemophilia A from B?  
A: A = Factor VIII deficiency; B = Factor IX deficiency (both X-linked)

### 99. Sickle Cell Crisis

Q: What triggers vaso-occlusive crisis?  
A: Hypoxia, dehydration, infection, cold exposure

### 100. Malignant Hyperthermia

Q: What triggers malignant hyperthermia?  
A: Volatile anesthetics or succinylcholine in susceptible patients

These flashcards cover toxicology, neurological emergencies, endocrine crises, and rare syndromes. Let me know if you'd like me to focus on any specific area in more detail!