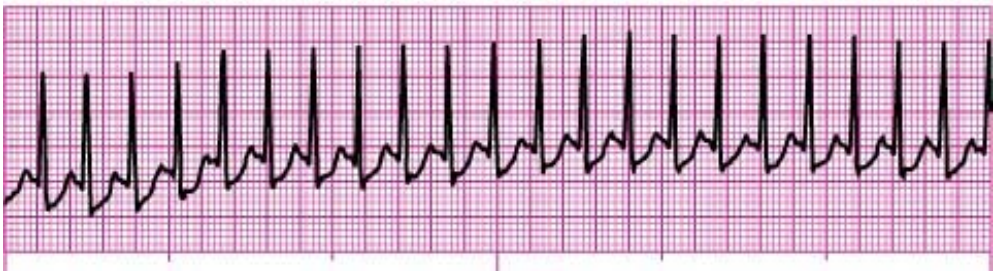
ASHI Advanced Cardiac Life Support
Exam

***Instructions*:** Read each of the questions carefully and then circle the letter of the correct answer on the separate answer sheet provided. Please do not write on exam.

1. **The initial treatment of any patient with symptomatic bradycardia should focus on:**
   a. Support of airway and breathing.
   b. Preparation for transcutaneous pacing.
   c. Preparation for synchronized cardioversion.
   d. Assessment of oxygen saturation and establishing IV access.

2. **A 37-year-old woman is complaining of shortness of breath and palpitations. You have placed the patient on O2 and an IV has been established. Her mental status is rapidly decreasing, and she is very pale. Her initial blood pressure was 148/70. It is now 62/38. Breathing is shallow at 8 to 12 breaths/minute. The cardiac monitor shows the following rhythm:**



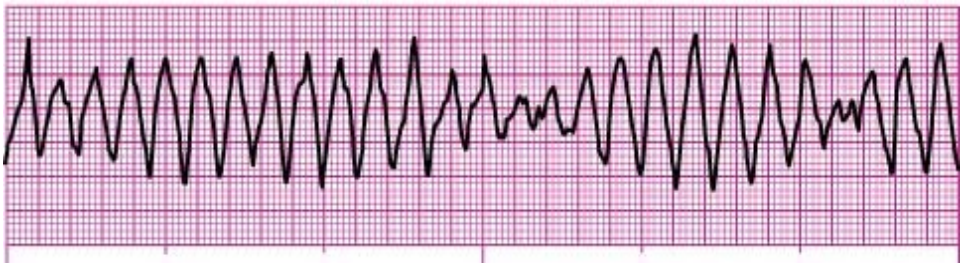
   Your BEST course of action will be to:

   a. Perform CPR and give epinephrine 1 mg IV push.
   b. Perform synchronized cardioversion starting with 50 joules.
   c. Perform CPR for 2 minutes, then defibrillate with 200 joules.
   d. Give sublingual nitroglycerin and then 150 mg of amiodarone.

3. **Atypical symptoms or unusual presentations of acute coronary syndromes are more common in:**
   a. The elderly, women, and diabetic individuals.
   b. Men, the elderly, and individuals who have liver disease.
   c. Women, diabetics, and individuals who have liver disease.
   d. Men and patients with coronary artery disease and hypertension.

4. **A patient has experienced a cardiopulmonary arrest. The cardiac monitor displays a sinus tachycardia at 110 beats/minute. Appropriate treatment for this patient should include:**
   a. CPR, IV access, epinephrine, and atropine.
   b. CPR, defibrillation, IV access, epinephrine, and atropine.
   c. CPR, IV access, epinephrine, and a search for the cause of the arrest.
   d. CPR, transcutaneous pacing, and a search for the cause of the arrest.

5. **A 29-year-old man presents with an acute altered mental status. His blood pressure is 50/P, respirations 14. The cardiac monitor reveals the following:**



Your BEST course of action in this situation will be to:

a. Consider sedation and defibrillate immediately.
b. Start an IV and give adenosine in a rapid IV push.
c. Perform an immediate synchronized cardioversion.
d. Start an IV and give diltiazem IV push over 2 minutes.

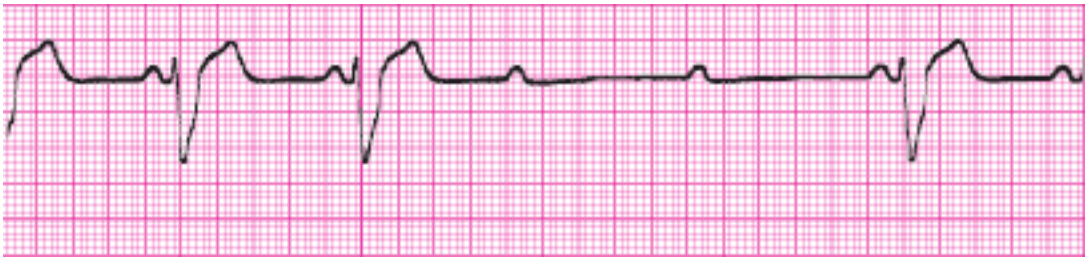
6. **The 2005 resuscitation guidelines no longer recommend transcutaneous pacing for which of the following rhythms?**

a. Asystole.
b. Junctional rhythm.
c. Third-degree AV block.
d. Second-degree AV block type II.

7. **A 53-year-old woman is unresponsive. BP 50/P, RR 10. The cardiac monitor initially showed a narrow-QRS tachycardia at 220 beats/minute. Oxygen therapy was initiated and an IV established before the patient's collapse. You promptly delivered a synchronized shock. Reassessment reveals the patient is not breathing and has no pulse. The cardiac monitor now reveals ventricular fibrillation. What course of action should you take at this time?**

a. Place an advanced airway and then begin transcutaneous pacing.
b. Press the “sync” control and deliver another synchronized shock.
c. Immediately perform an unsynchronized cardioversion.
d. Perform CPR for 5 cycles and then defibrillate.

8. **A 70-year-old man presents with acute altered mental status and dizziness. Oxygen has been applied and the cardiac monitor reveals the following rhythm:**



This rhythm is:

a. Junctional rhythm.
b. Second-degree AV block type I.
c. Second-degree AV block type II.
d. Third-degree AV block.

9. Based on the patient's signs and symptoms associated with this rhythm, your best course of action will be to:

a. Give atropine 1 mg IV every 3 to 5 minutes.
b. Give epinephrine 1 mg IV bolus and reassess.
c. Prepare for immediate transcutaneous pacing.
d. Observe the patient and monitor for signs of deterioration.

10. A 78-year-old woman is found unresponsive. From across the room, your first impression of the patient is that she is not moving, you can see no rise and fall of her chest or abdomen, and her skin color is pale. When you arrive at the patient's side, you confirm that she is unresponsive. As you shout for help, your <u>next</u> action in this situation should be to:

a. Begin chest compressions.
b. Open her airway and check breathing.
c. Apply the automated external defibrillator.
d. Prepare the necessary equipment to insert an advanced airway.

11. If no head or neck trauma is suspected, which of the following techniques should healthcare professionals use to open the airway?

a. Jaw-thrust without head-tilt.
b. Head-tilt/neck-lift.
c. Head-tilt/chin-lift.
d. Tongue-jaw lift.

12. The primary survey reveals the patient is unresponsive and not breathing. A weak pulse is present at a rate of about 70. Your best course of action will be to:

a. Begin mouth-to-mouth breathing.
b. Begin ventilations with a bag-valve-mask.
c. Begin cardiopulmonary resuscitations at 30 to 2.
d. Begin ventilations after inserting an endotracheal tube.

13. An oral airway:

a. Can only be used in spontaneously breathing patients.
b. Is usually well tolerated in responsive or semi-responsive patients.
c. Is of proper size if it extends from the tip of the nose to the tip of the ear.
d. Assists with ventilations by preventing the tongue from blocking the airway.

14. An oral airway is in place. In this situation, the proper rate for bag-valve-mask ventilation is:

a. 8 to 10 ventilations per minute; each ventilation delivered over 1 second.
b. 10 to 12 ventilations per minute; each ventilation delivered over 1 second.
c. 12 to 20 ventilations per minute; each ventilation delivered over 1 1/2 to 2 seconds.
d. 20 to 24 ventilations per minute; each ventilation delivered over 1 1/2 to 2 seconds.

15. A 62-year-old man is found unresponsive. He is not breathing and has no pulse. Which of the following correctly reflects the priorities of care during cardiac arrest?

a. Establishing IV access and drug administration.
b. Defibrillation and drug administration.
c. CPR and establishing IV access.
d. CPR and defibrillation.

16. During cardiac arrest:

a. Chest compressions should never be interrupted.
b. Chest compressions may be interrupted for up to 1 minute to start an IV and insert an advanced airway.
c. Chest compressions and ventilations should be interrupted every 3 to 5 minutes to permit the members of the resuscitation team to change positions.
d. Interruptions in chest compressions to analyze the ECG, charge the defibrillator, place an advanced airway, check a pulse, or other procedures must be kept to a minimum.

17. Defibrillation is indicated in the management of:

a. Ventricular fibrillation and asystole.
b. Asystole and pulseless electrical activity.
c. Pulseless ventricular tachycardia and ventricular fibrillation.
d. Pulseless ventricular tachycardia and pulseless electrical activity.

18. The cardiac monitor reveals the following rhythm.

Which of the following statements is true about this rhythm?

a. This rhythm is ventricular fibrillation, a "shockable" rhythm.
b. This rhythm is a wide-QRS tachycardia, a "non-shockable" rhythm.
c. This rhythm is a narrow-QRS tachycardia, a "non-shockable" rhythm.
d. This rhythm is monomorphic ventricular tachycardia, a "shockable" rhythm.

19. When a shockable rhythm is present during cardiac arrest and a biphasic manual defibrillator is available, the initial energy level selected should be:

a. 120 joules.
b. 200 joules.
c. 360 joules.
d. The dose recommended by the manufacturer for terminating the rhythm.

20. The preferred site for initial placement of a large IV catheter is the:

a. Saphenous vein.
b. Antecubital vein.
c. Subclavian vein.
d. Internal jugular vein.

21. Drugs given during cardiac arrest should be given:

a. By continuous IV infusion.
b. By the endotracheal route whenever possible.
c. By IV bolus and followed with a 20 mL flush of IV fluid.
d. By IV bolus over 2 to 3 minutes and followed with a 10 mL flush of IV fluid.

22. Attempts to establish a peripheral IV have been unsuccessful. Your best course of action at this time will be to:

a. Insert a central line.
b. Attempt intraosseous access.
c. Discontinue resuscitation efforts.
d. Continue peripheral IV attempts until successful.

23. Vasopressors that may be given during a cardiac arrest include:

a. Atropine and epinephrine.
b. Vasopressin and atropine.
c. Amiodarone and lidocaine.
d. Epinephrine and vasopressin.

24. In addition to oxygen, which of the following drugs can be given via the endotracheal route during an adult cardiac arrest?

a. Sodium bicarbonate, atropine, lidocaine, and amiodarone.
b. Naloxone, atropine, vasopressin, epinephrine, and lidocaine.
c. Amiodarone, epinephrine, sodium bicarbonate, and naloxone.
d. Lidocaine, adenosine, vasopressin, naloxone, and amiodarone.

25. Which of the following statements is true about giving antiarrhythmics during cardiac arrest?

a. An antiarrhythmic should be the first drug given in every cardiac arrest.
b. Antiarrhythmics are indicated only if an organized rhythm is seen on the cardiac monitor.
c. An antiarrhythmic is recommended for cardiac arrests involving non-shockable rhythms because studies clearly show that this action increases survival to hospital discharge.
d. An antiarrhythmic can be considered, but there is no evidence that any antiarrhythmic drug given routinely during human cardiac arrest increases survival to hospital discharge.

26. Vasopressin:

a. Should be given every 3 to 5 minutes during cardiac arrest.
b. Should be given as a continuous IV infusion at a rate of 40 U/hr in cardiac arrest.
c. May replace either the first or second dose of epinephrine in the treatment of cardiac arrest.
d. Can be used in cardiac arrest due to pulseless ventricular tachycardia or ventricular fibrillation, but not in cardiac arrest due to asystole or pulseless electrical activity.

27. Amiodarone:

a. Is given as a loading dose of 150 mg IV bolus over 10 minutes in cardiac arrest.
b. Should be given only if there is a return of spontaneous circulation after cardiac arrest.
c. Should be given IV or endotracheally in cardiac arrest due to pulseless electrical activity.
d. Is given as an initial IV dose of 300 mg and one repeat dose of 150 mg in cardiac arrest due to pulseless ventricular tachycardia or ventricular fibrillation.

28. Which of the following statements is true about patients who present with a possible acute coronary syndrome (ACS)?

a. VF or pulseless VT is most likely to develop 48 hours after the onset of symptoms.
b. Prophylactic lidocaine should be given to all patients with a possible ACS to reduce the incidence of VF.
c. A 12-lead ECG should be obtained within 10 minutes of patient contact (prehospital) or 10 minutes of patient arrival in the Emergency Department.
d. Patients who are most likely to benefit from reperfusion therapy are those who show ST-segment depression or nonspecific ST- or T-wave changes on their ECG.

29. Which of the following statements about lidocaine dosing in pulseless VT/VF is correct?

a. Lidocaine is given as a continuous IV infusion of 2 to 10 mcg/min.
b. Lidocaine is given as a continuous IV infusion of 10 to 20 mcg/kg/min.
c. The initial dose is 1 mg IV push, which may be repeated twice to a maximum dose of 3 mg.
d. The initial dose is 1 to 1.5 mg/kg IV push; repeat doses of 0.5 to 0.75 mg/kg IV push may be given at 5- to 10-minute intervals, to a maximum dose of 3 mg/kg.

30. Which of the following statements is true of right ventricular infarction (RVI)?

a. Right ventricular infarction or ischemia usually occurs in patients with an anterior wall infarction.
b. Typical signs and symptoms of RVI include hypertension, jugular venous distention, and bilateral rales/crackles.
c. Nitrates, diuretics, and other vasodilators should be avoided in RVI because severe hypotension may result.
d. Caution should be used when administering IV fluids because the development of pulmonary edema is increased in patients with RVI.

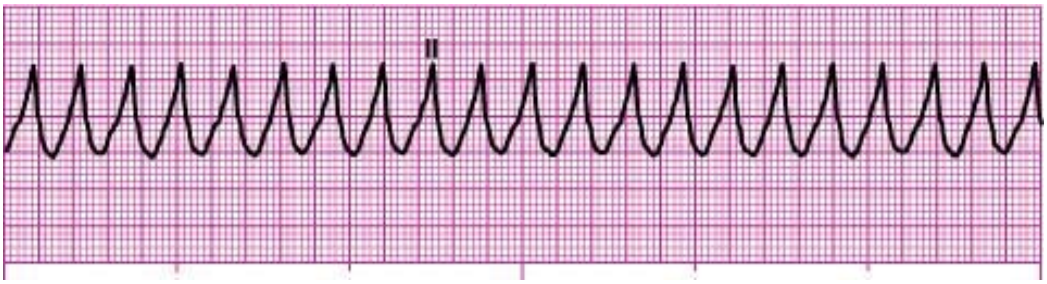
31. Atropine:

a. Is given in doses of 1 mg to a maximum of 3 mg in asystole or slow PEA.
b. Is used to slow the ventricular rate in narrow-QRS tachycardias.
c. Is given in doses of 1 to 1.5 mg/kg for symptomatic bradycardia.
d. Is effective for AV blocks below the level of the AV node.

32. Which of the following statements is true about ventilation with a bag-valve-mask?

a. A bag-valve-mask device should be equipped with a pop-off (pressure release) valve to overcome increased air resistance in cardiac arrest patients.
b. When an advanced airway is in place, ventilations with a bag-valve-mask must be synchronized with chest compressions during cardiac arrest.
c. Bag-valve-mask ventilation can produce gastric distention that can lead to vomiting and subsequent aspiration.
d. Bag-valve-mask ventilation can only be used for patients who are not breathing.

33. A 72-year-old man was complaining of severe substernal chest pain. His level of consciousness has steadily decreased. He now responds by moaning when his name is spoken. His skin is pale and clammy. BP 68/40, R 12. His pulse is weak and fast. The cardiac monitor reveals the rhythm below.



Your best course of action in this situation will be to:

a. Start an IV and give a 300 mg dose of amiodarone.
b. Perform synchronized cardioversion with 100 joules.
c. Begin CPR and then defibrillate with 360 joules after two minutes.
d. Ask the patient to bear down; if unsuccessful, give adenosine IV push.

34. Which of the following statements is incorrect?

a. When pulseless VT/VF is present, give 1 shock, recheck the patient's ECG rhythm and pulse, and then resume CPR.
b. In the case of a witnessed arrest due to pulseless VT/VF, defibrillation should be performed immediately if a defibrillator is available.
c. During cardiac arrest, rhythm checks should be brief, and pulse checks should generally be performed only if an organized rhythm is seen on the cardiac monitor.
d. When pulseless VT/VF is present, the rescuer providing chest compressions should be prepared to resume CPR, beginning with chest compressions, as soon as a shock is delivered.

35. Verapamil:

a. Is the drug of choice for patients with atrial fibrillation or atrial flutter associated with known pre-excitation (Wolff-Parkinson-White [WPW]) syndrome.
b. Should be given *only* to patients with narrow-QRS tachycardia or arrhythmias known with certainty to be of supraventricular origin.
c. Can be safely given to patients with impaired ventricular function or heart failure.
d. Is given rapidly as a 2.5 to 5 mg IV bolus (over 1 to 3 seconds).

36. Local complications common to all intravenous techniques include:

a. Sepsis.
b. Air embolism.
c. Hematoma formation.
d. Catheter-fragment embolism.

37. A 62-year-old man is presenting with signs and symptoms suggesting a stroke. Realizing that the benefits of IV or intra-arterial fibrinolytics are time-dependent, which of the following is the <u>most</u> important question that you should ask this patient, family, and/or bystanders?

a. "When did your symptoms begin?"
b. "When did you last see a physician?"
c. "Do you have a history of hypertension?"
d. "What were you doing when your symptoms began?"

38. After witnessing the sudden cardiac arrest of a 48-year-old man, you delivered a shock that resulted in a sinus tachycardia on the cardiac monitor. A strong pulse is present. An IV is in place. No medications have been given. Which of the following statements is correct?

a. Administration of an antiarrhythmic may be considered, but is not required.
b. A 150 mg IV bolus of lidocaine must be given to prevent the recurrence of VF.
c. A 40 unit IV bolus of vasopressin must be given to prevent the recurrence of VF.
d. A 300 mg IV bolus of amiodarone must be given to prevent the recurrence of VF.

39. Beta-blockers:

a. Increase myocardial oxygen consumption.
b. Increase the force and velocity of myocardial contraction.
c. Are contraindicated for patients experiencing an acute coronary syndrome.
d. Should be used with caution in patients with pulmonary disease or congestive heart failure.

40. In the management of a symptomatic, narrow-QRS bradycardia, if the maximum dose of atropine had been given and a pacemaker was not immediately available, your <u>next</u> course of action would include:

a. Dopamine infusion, 2 to 10 mcg/kg/min.
b. Amiodarone 150 mg IV over 10 minutes.
c. Epinephrine 1 mg IV bolus followed by a 20-mL saline flush.
d. Lidocaine 1 to 1.5 mg/kg IV bolus followed by a 10-mL saline flush.

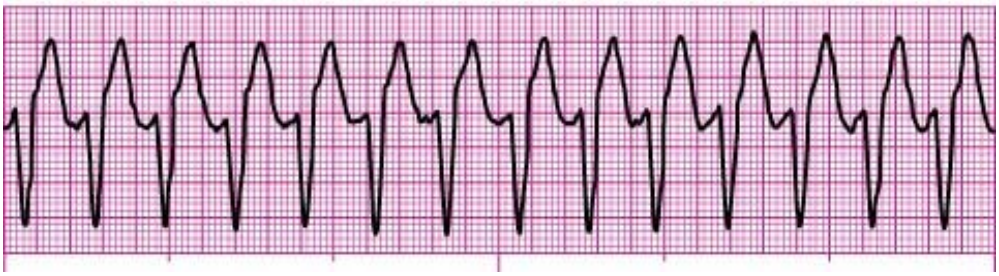
41. Administration of nitroglycerin should be avoided in all of the following situations EXCEPT:

a. Congestive heart failure of any cause.
b. Hypotensive patient (systolic blood pressure less than 90 mm Hg).
c. Heart rate of less than 50 beats/minute or more than 100 beats/minute.
d. Patients who have received a medication for erectile dysfunction within the last 24 hours (longer for some preparations).

42. Which of the following statements regarding safety precautions during defibrillation or synchronized cardioversion is NOT TRUE?

a. To reduce the risk of fire, make sure that oxygen does not flow across the patient's chest during defibrillation attempts.
b. Ultrasound gel is acceptable for use when using handheld paddles for defibrillation or synchronized cardioversion.
c. The use of multi-purpose ("combo") defibrillation pads instead of handheld paddles may be the best way to minimize the risk of sparks occurring during defibrillation.
d. If handheld paddles are used, gel pads are preferable to electrode pastes and gels because the pastes and gels can spread between the paddles, creating the potential for a spark.

43. An 89-year-old man is complaining of chest discomfort and a "racing heart." He rates his discomfort a "4" on a 0 to 10 scale. He states his symptoms began while playing a card game with friends. He had a myocardial infarction 15 years ago and a coronary artery bypass graft 5 years ago. His blood pressure is 140/90, respiratory rate 16. Breath sounds are clear. You have placed the patient on oxygen and started an IV. The cardiac monitor reveals the following rhythm:



You should:

a. Give magnesium sulfate 1 to 2 g IV over 10 minutes.
b. Sedate the patient and then defibrillate with 360 joules.
c. Give a 2.5 to 5 mg IV bolus of verapamil over 3 minutes.
d. Give adenosine if you believe the rhythm is SVT, or amiodarone if you think it is more likely ventricular tachycardia.

44. If it is necessary to defibrillate or perform synchronized cardioversion for a patient who has an implanted medical device (pacemaker or cardioverter-defibrillator), handheld paddles or self-adhesive pads should be placed:

a. At least one inch from the device.
b. Directly over the implanted device.
c. At least five inches from the device.
d. Synchronized cardioversion is contraindicated in these patients.

45. A 65-year-old man is complaining of a sudden onset of chest pain. He is awake, alert, and diaphoretic. Questions asked of the patient thus far reveal a possible acute coronary syndrome. The patient states that his symptoms began 45 minutes ago while cleaning his garage. He denies nausea and has not vomited. The patient states that his discomfort is located in the center of his chest and radiates to his jaw. He rates the discomfort a "10" on a scale of 0 to 10. His blood pressure is 130/50, respirations 24. The cardiac monitor reveals the following rhythm (lead II).

This rhythm is:

a. Wide-QRS tachycardia.
b. Second-degree AV block type I.
c. Junctional rhythm with ST-segment elevation.
d. Sinus rhythm with ST-segment elevation and first-degree AV block.

46. ST-segment elevation is considered significant if it is:

a. More than 1/2 mm in at least two leads.
b. More than 1 mm in at least two contiguous leads.
c. More than 2 mm in at least two leads.
d. More than 5 mm in at least two contiguous leads.

47. When the patient's 12-lead ECG is reviewed, the results should be used to classify the patient into one of three groups. Which of the following correctly reflects these categories?

a. ST-segment elevation, normal ECG, Q waves.
b. Q waves, ST-segment depression, inconclusive ECG.
c. ST-segment depression, normal ECG, inconclusive ECG.
d. ST-segment elevation, ST-segment depression, normal/nondiagnostic ECG.

48. Oxygen has been applied and an IV is in place. The patient's 12-lead ECG reveals ST-segment elevation in leads II, III, and aVF. Which of the following statements is correct?

a. Leads II, III, and aVF view the inferior wall of the left ventricle. Since an inferior myocardial infarction (MI) is suspected, right chest leads should be quickly used to rule out right ventricular infarction before giving medications for pain relief.
b. Leads II, III, and aVF view the anterior wall of the left ventricle. Since this patient is at extreme risk for congestive heart failure and cardiogenic shock, furosemide should be given without delay.
c. Since relief of pain is a priority in acute coronary syndrome patients, nitroglycerin and morphine should be given without further delay.
d. The patient's 12-lead results are inconclusive. Additional testing is needed before treatment is begun.

49. A patient has been successfully resuscitated from a cardiac arrest. The initial rhythm was monomorphic VT, which changed to VF. The patient's vital signs are now stable and a sinus rhythm is present on the monitor. The patient was given epinephrine and lidocaine IV bolus during the arrest. The 2005 resuscitation guidelines indicate that it may be reasonable to continue an infusion of an antiarrhythmic associated with a return of spontaneous circulation. With this in mind, which of the following statements is correct?

a. Begin an infusion of epinephrine.
b. Begin an infusion of lidocaine at 1 to 4 mg/min.
c. Give an IV bolus of amiodarone and then begin a continuous infusion.
d. Give additional IV bolus doses of lidocaine until the maximum dose is reached, then begin a lidocaine infusion.

50. A 56-year-old woman presents with a sudden onset of chest discomfort that has been present for about 1 hour. The patient describes her discomfort as a "squeezing" sensation in the middle of her chest. She rates her discomfort an 8 on a 0 to 10 scale. Her blood pressure is 126/72, respirations 14. Oxygen has been applied, an IV has been started, and the cardiac monitor reveals the rhythm below.

Immediate management of this patient should include:

a. Aspirin, nitroglycerin, and morphine.
b. Vagal maneuvers and adenosine rapid IV push.
c. Vagal maneuvers and an amiodarone IV infusion.
d. Nitroglycerin, morphine, lidocaine or amiodarone, and aspirin.