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Identifying and Interpreting Basic ECG Rhythms: A Bedside Guide for Nurses

1. A patient's AV node is ablated during a procedure, eliminating the normal delay at this site. Based on the role of the AV node in the conduction system, what is the most likely physiologic consequence if no compensatory mechanism is provided?

A. Purkinje fibers will assume the pacemaker role and increase the heart rate to 150–220 beats per minute
B. The atria will contract much later than the ventricles, leading to an increased cardiac output
C. The sinus node will stop generating impulses, resulting in immediate asystole
D. The atria and ventricles are more likely to contract simultaneously, reducing ventricular filling and overall pumping efficiency

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2. While interpreting an ECG, the nurse notes an absence of P waves and a QRS duration of 0.16 seconds that is consistently wide. Heart rate is 130 beats per minute. According to the course content, what does a wide QRS complex in this context most strongly suggest about the origin of the rhythm?

A. The SA node is firing faster than normal but conduction through the ventricles is normal
B. There is excessive slowing of conduction at the AV node causing atrial standstill
C. The electrical impulse is originating in the ventricles rather than in the atria
D. An ectopic focus within the atria is initiating early impulses while ventricular conduction remains normal

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3. A nurse is reviewing a 12-lead ECG that shows unusually long measured intervals, but the patient's clinical status is stable and unchanged. On checking the ECG machine, the nurse finds that the paper speed has been set incorrectly. Based on the course content, which action is most important to ensure accurate interval interpretation?

A. Reset the electrocardiograph paper speed to the standardized 25 mm/second before repeating and interpreting the ECG
B. Increase the paper speed further so that small changes in conduction are easier to visualize
C. Decrease the paper speed so that more cardiac cycles appear on a single strip for easier rate calculation
D. Ignore the machine settings and focus only on wave morphology, because intervals are independent of paper speed

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4. An adult patient's ECG shows a regular rhythm with a single P wave before every QRS complex. The PR interval is consistently 0.24 seconds, and the patient is asymptomatic. According to the

course content, how should this finding be interpreted?

A. First-degree atrioventricular block, reflecting a prolonged PR interval with continued 1:1 conduction from atria to ventricles
B. Mobitz type II second-degree AV block, reflecting an all-or-nothing failure of conduction at the bundle of His
C. Third-degree heart block, reflecting complete dissociation between atrial and ventricular activity
D. Benign sinus arrhythmia, reflecting normal variation in conduction with the respiratory cycle

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5. A nurse reviews a rhythm strip and notes: no discrete P waves, an absence of an isoelectric baseline, and fibrillatory waves of varying amplitude. The R–R intervals are irregularly irregular, and the atrial rate is estimated at 400–450 beats per minute. According to the course content, which rhythm does this pattern most strongly indicate?

A. Atrial flutter with a fixed conduction ratio
B. Atrial fibrillation
C. Supraventricular tachycardia with hidden P waves
D. Multifocal atrial tachycardia

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6. A 22-year-old otherwise healthy patient on telemetry has a rhythm in which the heart rate increases during inspiration and decreases during expiration. When asked to hold their breath, the rhythm becomes a steady normal sinus pattern. The patient denies symptoms. Based on the course content, what is the most appropriate nursing interpretation and response?

A. This represents early third-degree heart block and requires immediate preparation for temporary transcutaneous pacing
B. This is respiratory sinus arrhythmia, a benign rhythm common in young healthy adults; document the finding and continue routine assessment
C. This is a form of supraventricular tachycardia that requires urgent administration of antiarrhythmic medication
D. This suggests long QT syndrome and mandates immediate discontinuation of all potentially QT-prolonging drugs

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7. A patient is found to have a corrected QT interval (QTc) of 0.48 seconds and frequent premature ventricular contractions, including some that fall on the preceding T wave (R-on-T phenomenon). According to the course content, why is this combination particularly concerning?

A. Prolonged QT shortens the refractory period, protecting against the development of ventricular fibrillation
B. Long QT primarily causes benign premature atrial contractions, which rarely progress to more serious arrhythmias
C. R-on-T phenomena in the setting of a short QT interval usually self-resolve and are not associated with ventricular tachycardia
D. Long QT prolongs ventricular repolarization, so an ectopic beat during the QT interval can precipitate Torsades de Pointes and other serious ventricular arrhythmias

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8. A patient is unresponsive, pulseless, and apneic. The monitor shows organized electrical activity with narrow QRS complexes at a rate of 70 beats per minute, but no palpable pulse is present. Based on the course content, which statement best reflects the appropriate understanding of this rhythm?

A. This is pulseless electrical activity, which is an unshockable rhythm; defibrillation will not restore an effective cardiac rhythm
B. This is ventricular fibrillation, which requires immediate defibrillation as the primary intervention
C. This is normal sinus rhythm, so the focus should be on airway management rather than circulation
D. This is sustained monomorphic ventricular tachycardia, which should be treated with synchronized cardioversion

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9. An older adult presents with dizziness, hypotension, and a heart rate of 32 beats per minute. The ECG shows sinus bradycardia with a pulse. According to ACLS guidelines for symptomatic bradycardia described in the course, which nursing action bundle is most consistent with evidence-based care?

A. Withhold oxygen to avoid depressing respiratory drive and focus first on obtaining a detailed past medical history
B. Immediately defibrillate at maximum energy, then assess airway and breathing once the rhythm is converted
C. Ensure airway patency, monitor pulse oximetry, provide supplemental oxygen as needed, obtain a 12-lead ECG, establish IV access, and anticipate medications such as atropine and possible temporary transcutaneous pacing
D. Administer anticoagulation and schedule elective cardioversion once the patient is hemodynamically stable

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10. During a cardiac arrest event, the resuscitation team appears disorganized: the person performing chest compressions does not rotate out, there is no clearly identified leader, and no one is charting events. According to the ACLS team recommendations in the course content, which change would most directly improve performance and patient outcomes?

A. Focus solely on rapid defibrillation and discontinue documentation until after the resuscitation is complete
B. Reduce the number of team members to two so that communication is simpler and role overlap is minimized
C. Rotate all team members through every role without a leader so that everyone gains equal experience during the arrest
D. Designate a clear team leader and assign specific roles, including an airway manager, a chest compressor and cardiac monitor/defibrillator who alternate to prevent fatigue, an IV/IO medication administrator, and a recorder

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