

ACE Question

Which of the following is **MOST** likely true regarding perioperative myocardial infarction (PMI)?

- (A) PMI is usually associated with ST-segment elevation.
- (B) Most PMIs occur within the first 24 hours postoperatively.
- (C) The risk for PMI is elevated for up to two weeks after orthopedic surgical procedures.
- (D) Typical angina symptoms are always present.

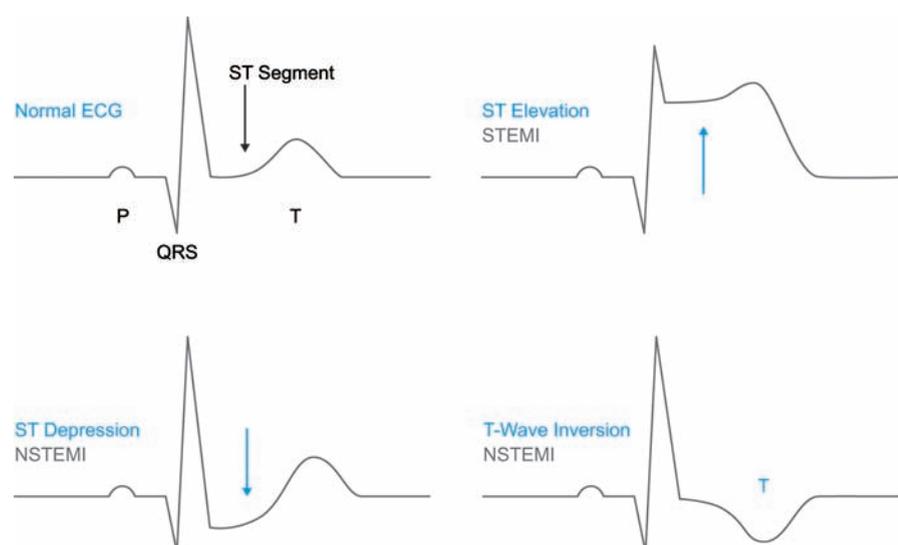


Figure: A normal electrocardiogram (ECG, top left) compared to ST-segment elevation myocardial infarction (STEMI, top right) and two types of non-ST-segment elevation myocardial infarction (NSTEMI, bottom left and right). © 2018 American Society of Anesthesiologists.

Perioperative myocardial infarction (PMI) can be due to one of two different mechanisms. The first is the acute disruption of an unstable coronary plaque, which initiates platelet aggregation and occlusive thrombus formation. The second is a sustained imbalance of myocardial oxygen supply and demand in the presence of significant coronary artery disease.

Most patients with PMI due to the second mechanism have non-ST-segment elevation myocardial infarction (NSTEMI) (Figure). In general, NSTEMI is the most common type of PMI.

The presence of PMI is associated with increased short- and long-term mortality rates. The Perioperative Ischemic Evaluation trial reported a 30-

day mortality of 11.6% for patients who experienced PMI. Approximately 80% of PMIs occur 48 to 72 hours postoperatively. The risk of PMI is increased for up to two weeks after orthopedic surgical procedures.

PMI can be difficult to diagnose because only half of patients report typical angina symptoms and those can be masked by analgesic medication and sedation. Electrocardiogram

changes are minor or transient in approximately 40% of patients with PMI. ■

Bibliography:

- Kaplan JA, Augoustides JGT, Manecke GR Jr, Maus T, Reich DL, eds. *Kaplan's Cardiac Anesthesia for Cardiac and Noncardiac Surgery*. 7th ed. Philadelphia, PA: Elsevier Saunders; 2017:1615-25.

Answer: C

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