

Healthy Heart

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Honorary Editor :
Dr. Vineet Sankhla



From the Desk of Hon. Editor:

Dear Friends,

Acute Coronary Syndrome (ACS) refers to a spectrum of clinical presentations ranging from those for ST-segment elevation myocardial infarction (STEMI) to presentations found in non-ST-segment elevation myocardial infarction (NSTEMI) or in unstable angina. ACS is almost always associated with rupture of an atherosclerotic plaque and partial or complete thrombosis of the infarct-related artery. Potential complications include pulmonary edema and myocardial infarction. What do you know about ACS? Test your knowledge with our short quiz.

- Dr. Vineet Sankhla

Test Your Knowledge of Acute Coronary Syndrome: Quiz

1. Which of the following is accurate about the etiology of ACS?

- Most cases of ACS occur from disruption of a previously nonsevere lesion
- Decreased blood glucose levels are risk factors for a major adverse cardiac event (MACE) in patients with suspected ACS
- ACS without elevation in demand typically excludes thrombosis or plaque hemorrhage
- Takotsubo syndrome only occurs in the presence of clinical coronary artery disease (CAD)

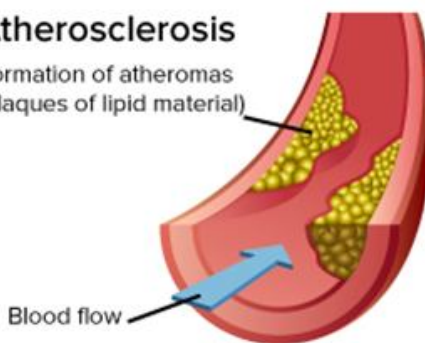
atherosclerotic lesion that was previously hemodynamically insignificant yet vulnerable to rupture). The vulnerable plaque is typified by a large lipid pool, numerous inflammatory cells, and a thin, fibrous cap.

Baseline blood glucose levels appear to be an independent risk factor for a MACE in patients with suspected ACS. In an analysis of data from 1708 Australian and New Zealand patients in a prospective observational study, investigators noted that a MACE occurred within 30 days of presentation in 15.3% of patients whose ED admission blood glucose levels were below 7 mmol/L (about 126 mg/dL); however, in the same time period, a MACE occurred in twice as many patients (30.9%) whose blood glucose levels were above 7 mmol/L. After controlling for various factors, patients who had admission blood glucose levels of 7 mmol/L or higher were at 51% higher risk of experiencing a MACE compared with patients who had lower baseline blood glucose levels.

THE ANSWER IS (A)

Atherosclerosis

Formation of atheromas (plaques of lipid material)



Most cases of ACS occur from disruption of a previously nonsevere lesion (an

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ACS without elevation in demand requires a new impairment in supply, typically due to thrombosis and/or plaque hemorrhage. A syndrome consisting of chest pain, ischemic ST-segment and T-wave changes, elevated levels of biomarkers of myocyte injury, and transient left ventricular apical ballooning (Takotsubo syndrome) has been shown to occur in the absence of clinical CAD, after emotional or physical stress. The etiology of this syndrome is not well understood but is thought to relate to a surge of catechol stress hormones and/or high sensitivity to those hormones.

2. Which of the following is accurate about the presentation of ACS?

- a) Exertional dyspnea due to ACS rarely resolves with pain and rarely improves with rest.
- b) Hypertension typically indicates ventricular dysfunction due to myocardial ischemia.
- c) Rales on pulmonary examination may suggest right ventricular dysfunction or aortic valve regurgitation.
- d) Women may have coronary events more often without typical symptoms.

THE ANSWER IS (D)

Evidence suggests that women more often have coronary events without typical symptoms, which may explain the

frequent failure of clinicians to initially diagnose ACS in women.

Heart Attack Symptoms

Men and women may experience some common symptoms. But there are differences.



A summary of patient complaints is as follows:

- Palpitations
- Pain (usually described as pressure, squeezing, or a burning sensation across the precordium and may radiate to the neck, shoulder, jaw, back, upper abdomen, or either arm)
- Exertional dyspnea
- Diaphoresis from sympathetic discharge
- Nausea from vagal stimulation
- Decreased exercise tolerance

Physical findings can vary from normal to any of the following:

- Hypotension: Indicates ventricular dysfunction due to myocardial ischemia, infarction, or acute valvular dysfunction
- Hypertension: May precipitate angina or reflect elevated catecholamine levels due to anxiety or to exogenous sympathomimetic stimulation

- Diaphoresis
- Pulmonary edema and other signs of left heart failure
- Extracardiac vascular disease
- Jugular venous distention
- Cool, clammy skin and diaphoresis in patients with cardiogenic shock

Rales or crackles on pulmonary examination may suggest left ventricular dysfunction or mitral regurgitation.

3. Which of the following is accurate regarding screening for coronary heart disease (CHD), according to American College of Physicians (ACP) guidelines?

- a) Cardiac screening improves patient outcomes, even in asymptomatic, low-risk adults
- b) The screening of asymptomatic, low-risk adults for cardiac disease should include resting or stress electrocardiography or echocardiography
- c) Low-risk adults should not be screened using stress myocardial perfusion imaging
- d) Individual risk factor measurements alone are sufficient to determine overall estimate of risk

THE ANSWER IS (C)

ACP guidelines on screening for CHD

include the following:

- No evidence suggests that cardiac screening improves patient outcomes in asymptomatic, low-risk adults.



- Potential harms of cardiac screening include false-positive results causing patients to undergo potentially unnecessary tests and procedures.
- Among adults at low risk, prevalence of coronary heart disease is low, and cardiac screening is of low predictive value. Therefore, cardiac screening is of low yield, and the probability that positive findings will influence therapeutic decision-making is low.
- Clinicians should therefore emphasize strategies to reduce cardiovascular risk even further among low-risk adults by treating modifiable risk factors (smoking, diabetes, blood pressure, hyperlipidemia, overweight, and exercise).
- Clinicians should not screen asymptomatic, low-risk adults for cardiac disease using resting or stress electrocardiography, stress echocardiography, or stress

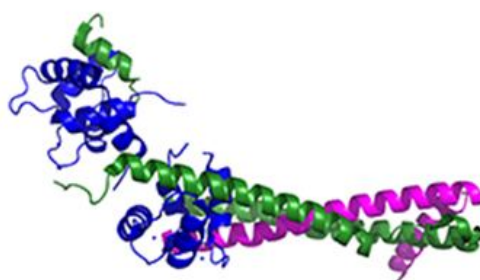
myocardial perfusion imaging.

- Clinicians should conduct cardiovascular risk assessment with a global risk score combining individual risk factor measurements into a single quantitative estimate of risk.
- The ACP recommendations do not apply to symptomatic patients or to screening athletes before participation in various events.

4. Which of the following is accurate regarding the workup of ACS?

- High-sensitivity cardiac troponin is more sensitive than creatine kinase isoenzyme (CK-MB) in detecting myocardial infarctions
- Echocardiography is routinely indicated as a first-line test for diagnosis of ACS
- Myoglobin levels alone may be used to detect ACS
- Normal ECG findings or ECG results that remain unchanged from the baseline exclude the possibility that chest pain is ischemic in origin

THE ANSWER IS (A)



Cardiac-specific troponins provide high specificity for detecting injury to cardiac myocytes. These molecules are also more sensitive than CK-MB for myocardial necrosis and therefore improve early detection of small myocardial infarctions. Although blood troponin levels increase simultaneously with CK-MB levels (about 6 hours after the onset of infarction), they remain elevated for as long as 2 weeks. As a result, troponin values cannot be used to diagnose reinfarction. New methods of detecting troponins in the blood can measure levels as low as 0.1-0.2 ng/mL.

Myoglobin is not cardiac specific, but it may be detected as early as 2 hours after myocardial necrosis starts. However, myoglobin results should be supplemented with other, more specific cardiac biomarkers, such as CK-MB or troponin.

According to the American College of Cardiology and American Heart Association guidelines, echocardiography is not routinely indicated as a first-line test for diagnosis.

Normal ECG findings or ECG results that remain unchanged from the baseline do not exclude the possibility that chest pain is ischemic in origin. Changes that may be

seen during anginal episodes include the following:

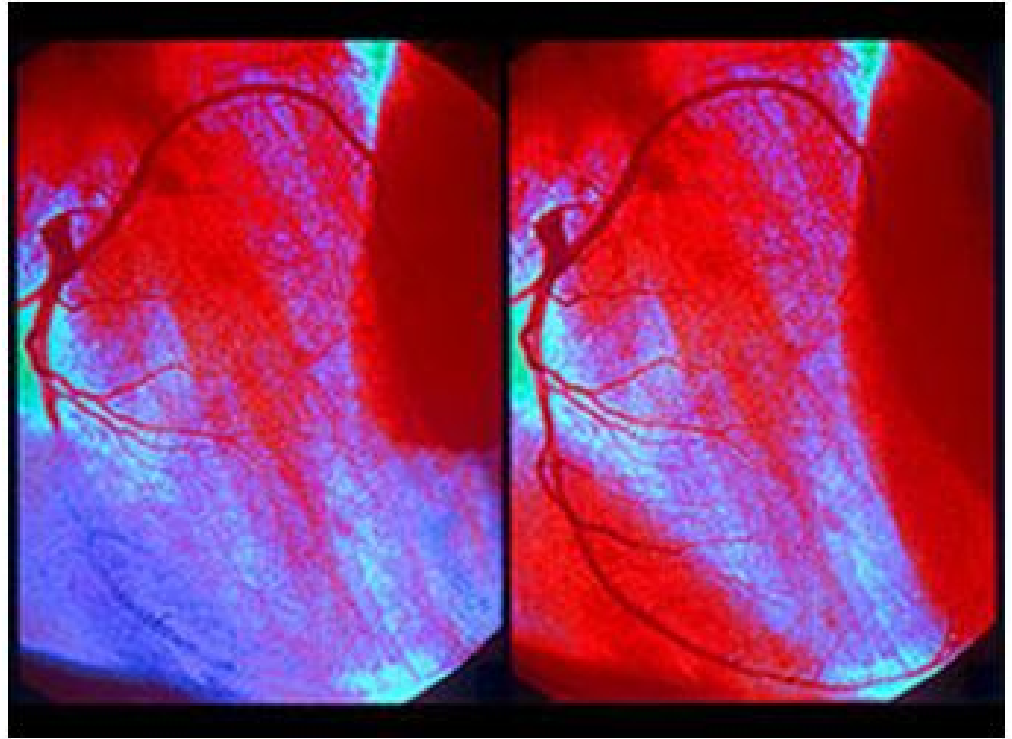
- Transient ST-segment elevations
- Dynamic T-wave changes: inversions, normalizations, or hyperacute changes
- ST depressions: may be junctional, downsloping, or horizontal

5. Which of the following is accurate regarding treatment of ACS?

- a) In patients with complete vessel occlusion without collateralization of the infarct-related vessel, pushing nitrates is indicated
- b) Dual antiplatelet therapy with clopidogrel and aspirin is often used in patients with prior ischemic stroke
- c) Eptifibatide/Tirofiban should typically be administered 12 hours or more before angiography
- d) Diagnostic angiography with intent to perform revascularization is indicated in patients with unstable angina/NSTEMI who have refractory angina or hemodynamic or electrical instability

THE ANSWER IS (D)

An early invasive strategy (ie, diagnostic angiography with intent to perform revascularization) is indicated in patients with unstable angina/NSTEMI who have refractory angina or hemodynamic or



electrical instability without serious comorbidities or contraindications to such procedures. An early invasive strategy is also indicated in initially stabilized patients with unstable angina/NSTEMI who do not have serious comorbidities or contraindications to such procedures and who have an elevated risk for clinical events.

In complete vessel occlusion without collateralization of the infarct-related vessel, "pushing nitrates" is of little use.

Dual antiplatelet therapy with clopidogrel and aspirin, compared with aspirin alone, reduces major cardiovascular events in patients with established ischemic heart disease; it also reduces coronary stent

thrombosis but is not routinely recommended for patients with prior ischemic stroke because of the risk for bleeding.

The use of eptifibatide 12 hours or more before angiography was not superior to the provisional use of eptifibatide after angiography, according to results of the EARLY ACS trial. The study compared a strategy of early, routine administration of eptifibatide with delayed, provisional administration in patients who had ACS without ST-segment elevation and who were assigned to an invasive strategy. The study also found that early use of eptifibatide was associated with an increased risk for non-life-threatening bleeding and the need for transfusion.



CIMS Learning Center



PROXIMAL FEMUR FRACTURES UPDATE June 11, 2017 (Sunday)

Course Directors : Dr. Pranav Shah / Dr. Keyur Buch / Dr. Satish Patel / Dr. Rachit Sheth

Venue : CIMS Auditorium

Program Overview:

A variety of implant & treatment options are available for proximal femur fracture treatment (Hip fractures). This course is an opportunity to understand the philosophy, biomechanics and technique of each - including Angle blade plate, Ender's Nails & Primary Hip Arthroplasty. The national level, senior faculty (more than 15 experts) will share their years of experience with tips & tricks and provide a deeper insight in to this unsolved but common fracture.

Program Highlights:

Edited videos to highlight the techniques of

- ABP
- Enders Nails
- Primary THR
- Trochanteric Wiring
- Pearls & Pitfalls from various faculties regarding each implant system
- Interactive sessions & Interesting debates.

Registration Fees : 500/- (Non Refundable)

Spot Registration Fees : 1,000/- (Non Refundable)

Certificate of attendance will be given at the end of the course.

CASE BASED MANAGEMENT OF HYPERTENSION June 18, 2017 (Sunday)

Course Directors : Dr. Anish Chandarana / Dr. Vineet Sankhla / Dr. Tejas V. Patel

Venue : CIMS Auditorium

Program Overview:

Hypertension, its etiologies, evaluation and treatment have been a matter of great interest ever since this topic is known to us. Many guidelines across the globe do exist, yet there are enough controversies and many grey areas. This certification course aims at analyzing and discussing all relevant points in hypertension through case-based approach.

Program Highlights:

- Essential Hypertension : How "essential" is it?
- Secondary Hypertension : How to evaluate and in whom to evaluate ?
- Treatment of Uncomplicated Hypertension
- Goals and Targets in Patients with other comorbidities: Stroke, CHD, CKD, Diabetes
- Hypertension in young men and women : How different is it ?
- Hypertension and Pregnancy
- Isolated Systolic Hypertension: Still the Achilles Heel !
- Always debatable : Is aggressive BP control desirable ?

Registration Fees : 500/- (Non Refundable)

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- A nonprofit initiative by CIMS Hospital, Ahmedabad, Sankalp India Foundation and Cure2children organization, Italy



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CIMS Learning Center

CIMS Learning Center hosted "**Mechanical Ventilator Support**" Certification Course on **April 30, 2017**. The course imparted knowledge to Physicians, Interns, MBBS & MD students on respiratory physiology, patient ventilator asynchrony, etc. Different sessions were dedicated on basics of Ventilation, Graphics & Care during Mechanical Ventilation, ABG Analysis, Non-Invasive Ventilation and many more.

The course was a huge success!



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