The Ochsner Journal

Continuing Medical Education

CME QUESTIONS VOL. 9, NO. 4

This section provides a review. Mark each statement (circle the correct answer) according to the factual material contained in this issue and the opinions of the authors. A score of 70% per article is required to qualify for CME credit.

An Updated Concept for Left Ventricular Hypertrophy Risk in Hypertension

1. Which of the following were the initial risk factors of coronary heart disease?
   a. Hypertension.
   b. Left ventricular hypertrophy.
   c. Hypercholesterolemia.
   d. All of the above.
   e. None of the above.
2. Coronary artery disease is synonymous with coronary heart disease.
   True or False
3. Ventricular myocytic hypertrophy is a risk factor directly responsible for morbidity and mortality from coronary heart disease.
   True or False
4. In patients with left ventricular hypertrophy, which of the following account for left ventricular oxygen demand?
   a. Systolic pressure.
   b. Diastolic pressure.
   c. Heart rate.
   d. Transverse cardiac diameter.
   e. All of the above.
5. Which of the following electrocardiographic changes precede the finding of left ventricular hypertrophy?
   a. Prolonged QRS complex.
   b. Shortened P-R interval.
   c. Left atrial abnormality.
   d. Increased P-wave amplitude and width.
   e. All of the above.
6. Which of the following pathological changes are underlying mechanisms associated with left ventricular hypertrophy?
   a. Perivascular fibroses of the coronary arterioles.
   b. Fibrosis of the ventricular extracellular matrix.
   c. Ventricular ischemia.
   d. Apoptosis of ventricular myocytes.
   e. All of the above.

Clinical Implications of Left Atrial Enlargement: A Review

1. When left atrial size is measured in clinical practice, volume determinations are preferred over linear dimensions.
   True or False
2. In healthy individuals, left atrial volume index is age dependent.
   True or False
3. Left atrial size has been shown as a prognostic marker for:
   a. Atrial fibrillation.
   b. Stroke.
   c. Heart failure with preserved ejection fraction.
   d. Cardiovascular and all-cause mortality.
   e. All of the above.

Salt, Arterial Pressure, and Cardiovascular and Renal Damage

1. Excessive salt intake exerts adverse structural and functional cardiovascular and renal effects.
   True or False
2. The adverse effects of salt are mediated exclusively through concomitant increase in arterial pressure.
   True or False
3. Salt induces target organ damage, at least in part, directly, possibly by activating the local renin-angiotensin-aldosterone system.
   True or False
4. The results of a large population study demonstrated that reduction in salt intake of about 25% over several decades increases life expectancy by 5 to 6 years.
   True or False

C-Reactive Protein: How Has JUPITER Impacted Clinical Practice?

1. After 12 months of treatment with rosuvastatin 20 mg daily in the JUPITER trial compared to placebo:
   a. There was a 30% reduction in median low density lipoprotein-cholesterol and a 10% lower median highly sensitive C-reactive protein.
   b. The primary combined cardiovascular events were reduced by 44% and a significant 20% reduction in total mortality.
   c. Rosuvastatin was associated with a higher reduction of events in males than in females.
   d. Rosuvastatin was associated with lower incidence of diabetes mellitus.
2. Which of the following is the established marker of systemic inflammation that has been implicated in the pathophysiology of cardiovascular diseases and is relatively easy to measure in clinical practice?
   a. Cytokines.
   b. Chemokines.
   c. Highly sensitive C-reactive protein.
   d. White blood cells.
3. The following are true except:
   a. The number needed to treat in JUPITER was 25 for the prevention of one adverse cardiovascular event.
   b. Exercise training and therapeutic lifestyle changes reduce highly sensitive C-reactive protein by at least 40%.
   c. The levels of highly sensitive C-reactive protein are elevated in subjects with metabolic syndrome, and higher highly sensitive C-reactive protein is correlated with poor endothelial function.
   d. The Air Force/Texas Coronary Atherosclerosis Prevention Study (AFCAPS/TexCAPS) showed that highly sensitive C-reactive protein was a poor predictor of increased cardiovascular risk.

Treatment of Refractory Angina

1. Enhanced external counterpulsation (EECP) has been shown to produce all of the following except:
   a. A reduction of angina symptoms.
   b. An improvement in objective measures of myocardial ischemia.
   c. An improvement in left ventricular function (both systolic and diastolic).
   d. Mortality.
2. All of the following are true regarding nitrates except:
   a. Nitrates provide anti-ischemic and anti-anginal effects by venodilatation.
   b. Nitrates reduce diastolic filling of the heart.
   c. Nitrates increase afterload and cardiac contractility.
   d. Tolerance to nitrates blunts the clinical effectiveness of short acting nitrates and should be avoided as therapy for chronic angina.
3. Transmyocardial revascularization (TMR) is believed to work by:
   a. Direct bathing of the myocardium through channels.
   b. Denervation of the myocardium.
   c. Angiogenesis.
   d. A and C.
   e. B and C.
4. The long-term safety of cardiac myogenesis (cell therapy) has been established.
   True or False

Pulmonary Hypertension for Primary Care Providers

1. The 5-year survival for untreated idiopathic pulmonary arterial hypertension is >50%.
   True or False
2. Pulmonary arterial hypertension is best described as:
   a. Mean pulmonary artery pressure >25 mmHg.
   b. Pulmonary vascular resistance >3 Wood units.
   c. Elevated mPAP in the setting of normal cardiac output, capillary wedge pressure, and left atrial pressure.
   d. All of the above.
3. Which of the following are noncardiac causes of pulmonary hypertension?
   a. Obstructive sleep apnea.
   b. Interstitial lung disease.
   c. Sarcoidosis.
   d. Connective tissue disorder.
   e. HIV infection.
   f. All of the above.

Atrial Fibrillation: Current Perspective

1. A 48-year-old female with hypertension presents to clinic with atrial fibrillation for the past 16 months. She is on full-dose aspirin and is being rate-controlled with metoprolol tartrate. Which is the most appropriate atrial fibrillation classification for this patient?
   a. Paroxysmal atrial fibrillation.
   b. Persistent atrial fibrillation.
   c. “Long-standing” persistent atrial fibrillation.
   d. Permanent atrial fibrillation.
2. Which is the cornerstone strategy being used in current radiofrequency catheter ablation procedures?
   a. Pulmonary vein isolation.
   b. Linear ablation lines.
   c. Ablation of complex fractionated atrial electrograms noted during mapping.
   d. Ganglionic plexi ablation.
3. Radiofrequency catheter ablation is indicated for asymptomatic patients with atrial fibrillation so that they may discontinue the use of warfarin.
   True or False

Cardiac Computed Tomography: Changing the Way We Look at the Heart

1. An appropriate screening test for an asymptomatic individual with an intermediate Framingham risk of myocardial infarction includes all of the following except:
   a. Highly sensitive C-reactive protein.
   b. Coronary artery calcium score.
   c. Treadmill stress test.
   d. Coronary computed tomography angiogram.
2. An appropriate test for an individual seen in the clinic or the Emergency Department with chest discomfort, negative cardiac enzymes, and nonspecific echocardiogram changes includes all of the following except:
   a. Coronary calcium score.

The maximum number of credits awarded for this activity is 9 *AMA PRA Category 1 credits™*

b. Stress echocardiogram.
c. Coronary computed tomography angiogram.
d. Myocardial stress perfusion imaging.

3. Coronary computed tomography angiograms, when compared to the gold-standard of invasive coronary angiography, have a:
   a. High positive predictive and high negative predictive value.
   b. High negative predictive value but a much lower positive predictive value.
   c. High negative predictive value and a high positive predictive value.
   d. Low positive predictive value and low negative predictive value.

Magnetic Resonance Imaging: A Wealth of Cardiovascular Information

1. Cardiac magnetic resonance imaging can not be used for the evaluation of:
   a. Mitral valve regurgitation fraction.
   b. Myocardial ischemia.
   c. Coronary plaque burden.
   d. Constrictive pericardial disease.
2. Cardiac magnetic resonance imaging can be used to differentiate between myocardial infarction due to acute coronary syndrome and myocarditis.
   True or False
3. To avoid the complication of nephrogenic fibrosis dermopathy, cardiac magnetic resonance imaging with gadolinium should be avoided in:
   a. Patients over the age of 65.
   b. Patients under the age of 3.
   c. Patients with creatinine clearance of <30 mL/min.
   d. Patients with autoimmune diseases.
4. In the evaluation of congenital heart disease, magnetic resonance imaging cannot provide:
   a. Shunt calculation.
   b. Evaluation of anomalous pulmonary veins.
   c. Visualization of septal defects.
   d. Pulmonary artery pressures.

Induced Hypothermia as a Neuroprotectant in Post-Cardiac Arrest

1. The application of hypothermia in post-cardiac arrest was first recommended in the United States in 2003. The two major randomized controlled trials published in the New England Journal of Medicine, which led to these recommendations, were performed in:
   a. The USA and Europe.
   b. The USA and Canada.
   c. Australia and Europe.
   d. The USA and Australia.
2. Mechanisms of neuroprotection from induced hypothermia include which of the following:
   a. Prevent initial ischemic brain injury.
   b. Prevent reperfusion injury.
   c. None of the above.
   d. Both a and b.
3. Available therapies currently approved for use in the prevention of post-cardiac arrest anoxic brain injury include which of the following:
   a. Induced hypothermia.
   b. Thiopental.
   c. Calcium channel blocker.
   d. Both a and b.
   e. Both a and c.
4. In post-cardiac arrest patients, following successful resuscitation and induction of hypothermia, core body temperature should be maintained at 32-34°C for:
   a. 12-24 hours.
   b. 24-48 hours.
   c. 7 days.
   d. Any of the above.

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Please indicate the actual time spent reading and completing this education activity. _____ hour(s) and _____ minutes. The maximum number of credits awarded for this activity is 9 *AMA PRA Category 1*™ credits.

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EVALUATION

Your response to these questions helps us to enhance our CME offerings. Please take the time to respond and return the evaluation. Thank you.

Please use the following codes to answer items 1-7.

SA – Strongly Agree
A – Agree
U – Undecided
D – Disagree
SD – Strongly Disagree

1. The objectives of the CME activity were clearly stated.
   SA A U D SD
2. The content of the journal articles was up-to-date.
   SA A U D SD
3. The journal articles illustrated independence, objectivity, balance, and scientific rigor.
   SA A U D SD
4. The content was closely related to objectives of my clinical practice and/or teaching.
   SA A U D SD
5. The journal articles increased my knowledge of the subject.
   SA A U D SD
6. The content of the journal articles met my personal expectation and needs.
   SA A U D SD
7. I will apply the information learned from these journal articles in my clinical practice.
   SA A U D SD

Do you have any suggestions as to how to improve the content of the journal articles?

_____

What topics would you like to see in future journal articles?

_____

Thank you for completing this evaluation and survey.