



THE JOURNAL *of the* AMERICAN OSTEOPATHIC ASSOCIATION

The purpose of this quiz is to provide a convenient means for osteopathic physicians to assess their understanding of the scientific content in the December 2014 issue of *The Journal of the American Osteopathic Association (JAOA)*.

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Alternatively, osteopathic physicians can complete the quiz below and mail it to the following address by June 30, 2016:

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For each of the questions below, place a checkmark in the box provided next to your answer so that you can easily verify your answers against the correct answers, which will be published in the January 2015 issue of the JAOA.

Effect of Triage-Based Use of the Ottawa Foot and Ankle Rules on the Number of Orders for Radiographic Imaging

John V. Ashurst, DO; Thomas Nappe, DO;
Stephanie Digiambattista, MD; Avinash
Kambhampati, DO; Sarfraz Alam, MD;
Michelle Ortiz, RN; Paul Delpais, RN;
Bernadette Glenn Porter, BS; Anita Kurt, RN,
PhD; Bryan G. Kane, MD; and Marna Rayl
Greenberg, DO, MPH

1. All of the following are reasons that US physicians feel negatively about clinical decision rules *except*:
- (a) They will not protect them from patient complaints.
 - (b) They will challenge a physician's authority.
 - (c) They may increase the likelihood of litigation.
 - (d) They may increase length of stay.

2. Of the nearly 2 million emergency department visits each year for ankle injuries, what percentage results in clinically significant fractures?

- (a) 5%
- (b) 10%
- (c) 15%
- (d) 20%

Diagnosis and Management of Plantar Fasciitis

John V. Thompson, DO;
Sundeep S. Saini, OMS IV;
Christopher W. Reb, DO;
and Joseph N. Daniel, DO

3. Which of the following groups is not at risk for plantar fasciitis:
- (a) military personnel
 - (b) active adolescents
 - (c) sedentary individuals
 - (d) adults aged 45 to 64 years

4. A 24-year-old man on active military duty presents to his primary care physician describing deep, dull heel pain in his right foot. The pain started a few days before presentation after strenuous marching drills and prolonged running. The patient notes that he has difficulty walking on hard surfaces because of the pain. Physical examination reveals mild swelling of his right heel. Heel squeeze test result is positive. What is the diagnosis?

- (a) plantar fasciitis
- (b) tarsal tunnel syndrome
- (c) calcaneal tuberosity stress fracture
- (d) Achilles tendonitis

5. What is the correct counterstrain position to treat a patient with plantar fasciitis?

- (a) extension of the knee, dorsiflexion of the ankle, and extension of the toes
- (b) flexion of the knee, dorsiflexion of the ankle, and flexion of the toes
- (c) extension of the knee, plantar flexion of the ankle, and extension of the toes
- (d) passive flexion of the knee, plantar flexion of the ankle, and flexion of the toes

6. Which of the following serious complications should physicians check for before using corticosteroid injections to treat patients with plantar fasciitis:

- (a) infection
- (b) plantar fascia rupture
- (c) fat pad atrophy
- (d) all of the above

Laser Doppler Flowmetry in Manual Medicine Research

Rafael Zegarra-Parodi, DO (England), MEd;
Eric J. Snider, DO; Peter Yong Soo Park,
OMS III; and Brian F. Degenhardt, DO

7. Laser Doppler flowmetry is a noninvasive tool that can be used to evaluate which of the following:

- (a) skin temperature activity
- (b) skin sympathetic nerve activity
- (c) efferent peripheral sympathetic nerve activity
- (d) sudomotor activity
- (e) endothelial activity

8. Laser Doppler flowmetry used in combination with a reactivity test shows an expected and reproducible decrease or increase in skin blood flow. What would be the value of adding such a test in manual medicine research when evaluating the influence of a manual technique on skin blood flow?

- (a) to evaluate the skin microvascular reactivity
- (b) to use a positive control
- (c) to compare the effects of a manual technique with those following a described test
- (d) to compare the magnitude of the effects of a manual technique with those following a described test
- (e) all the above

9. When applied to the skin surface, how far does the laser beam of a laser Doppler flowmetry probe penetrate the tissues?

- (a) 0-0.5 mm
- (b) 0.5-1.0 mm
- (c) 1.0-1.5 mm
- (d) 1.5-2.0 mm
- (e) 2.0-2.5 mm

10. When a laser Doppler flowmetry signal is expressed in a frequency domain, the highest range of frequencies is usually associated with which of the following activities:

- (a) heart activity
- (b) respiratory activity
- (c) endothelial activity
- (d) neurogenic (sympathetic) activity
- (e) myogenic activity

Use of Real-Time Physiologic Parameter Assessment to Augment Osteopathic Manipulative Treatment Training for First-Year Osteopathic Medical Students

Deborah M. Heath, DO; Inder Raj S. Makin, MD, PhD; Chandhana Pedapati, BS; and Jonathon Kirsch, DO

11. Which of the following statements best describes the physiology demonstration laboratories incorporated into the first-year osteopathic principles and practice curriculum at A.T. Still University—School of Osteopathic Medicine in Arizona (Mesa):

- (a) Students practice osteopathic manipulative treatment (OMT) on simulated patients.
- (b) Students measure pre- to post-OMT physiologic changes on an automated mannequin.
- (c) Students measure pre- to post-OMT physiologic changes on each other.
- (d) Students observe physiologic changes on calibrated vertebral models.

Right Hemicolectomy in a Severely Anemic Jehovah's Witness Patient With an Extremely Low Preoperative Hemoglobin Level and the Decision to Operate

Joshua M. Yeykal, DO; Julie M. Stausmire, MSN, ACNS-BC; Mohammed Y. Ahmed, MD; and Ajith Pai, MD

12. A hospital's residents and attending surgeon are caring for a critically ill patient with active gastrointestinal bleeding who is refusing blood transfusion therapy because of his Jehovah's Witness faith. The health care team has no previous experience treating Jehovah's Witness patients. When they consult the institutional policy and procedure manual, no guidelines for resources or directives are available. Which of the following actions is most appropriate:

- (a) Provide medical stabilization while consulting the hospital's risk management department for an immediate court order allowing the transfusion of blood products in order to save the patient's life.
- (b) Have the patient sign a document stating he is refusing advised lifesaving medical care, institute comfort care measures, and consult palliative care for anticipated mortality.
- (c) Assess scientific studies and culturally relevant resources (ie, the Jehovah's Witness Hospital Liaison Committee) related to Jehovah's Witnesses, severe anemia, and bloodless therapies.

13. Which of the following statements is true regarding the rights of conscious, competent adult patients who are actively able to participate in medical decision making:

- (a) The United States legal system has consistently ruled that physicians have the right to institute emergent life-saving treatment despite verbal refusal from a competent adult patient during a life-threatening medical emergency.
- (b) The Patient Self-Determination Act of 1990 requires institutional health care providers to ask patients if they have an advanced directive and to record patient preferences for end-of-life care in the medical record.
- (c) Jehovah's Witness no-blood cards are specifically identified as legal documents by the federal government and are accessible on all state health department government websites.

Answers to the November 2014 JAOA CME Quiz

Discussion answers to JAOA continuing medical education quizzes appear only when authors have included discussions with the quiz questions and answers they must provide to meet the requirement for submission to and publication in the JAOA.

Relationship Between Hypothermia and Blood Loss in Adult Patients Undergoing Open Lumbar Spine Surgery

Nicholas S. Tedesco, DO; Frederick P. Korpi, DO; Vanessa K. Pazdernik, MS; and Jeffrey M. Cochran, DO

- (d) You are counseling a 65-year-old patient with unstable spondylolisthesis scheduled to undergo an open lumbar instrumented fusion surgery. The patient has several questions regarding intraoperative blood loss and allogeneic transfusion risk. The most appropriate response to the patient is "Your diagnosis of spondylolisthesis and your scheduled surgery of an instrumented fusion both independently put you at risk for excessive blood loss and need for a transfusion."
- (c) Preoperative use of warfarin is not a risk factor for increased intraoperative blood loss in adult patients undergoing open lumbar spine surgery.

Management of Ionizing Radiation Injuries and Illnesses, Part 5: Local Radiation Injury

Carol J. Iddins, MD; Doran M. Christensen, DO; Steven J. Parrillo, DO; Erik S. Glassman, EMT-P, MS; and Ronald E. Goans, PhD, MD, MPH

- (d) The dose threshold to the skin for the development of moist desquamation in local radiation injury is 15 to 25 Gy.

- (b) One primary difference between the management of local radiation injury and thermal burn injury is that local radiation injury has a tendency to reactivate after long periods of time, necessitating indefinite protection of the wound site.

Professionalism Score and Academic Performance in Osteopathic Medical Students

Karen T. Snider, DO, and Jane C. Johnson, MA

- (a) Studies have found that unprofessional behaviors during predoctoral education are associated with future state board disciplinary action. Physicians who have been disciplined by state medical boards have been found to have had lower grade point averages, lower achievement on clerkship evaluations, and more behavioral incident reports during predoctoral education than physicians who have not been disciplined.
- (b) The current study found that the professionalism score was statistically correlated with academic achievement in the majority (21 of 40) of first- and second-year courses. It was predictive of academic performance in 16 of 23 clinical courses but only 5 of 17 basic science courses. It was not predictive of performance on osteopathic manipulative medicine practical examinations. Behavioral incident reports were not reviewed in the current study.

Use of Beat-to-Beat Cardiovascular Variability Data to Determine the Validity of Sham Therapy as the Placebo Control in Osteopathic Manipulative Medicine Research

Charles E. Henley, DO, MPH, and Thad E. Wilson, PhD

- (a) In a study of osteopathic manipulative treatment with a treatment group and a control group, investigators can tell if a sham therapy is a true placebo control if the sham therapy is hands on, is indistinguishable from the treatment, does not create its own effect, and is not an intervention.

Intermittent Left Bundle Branch Block: An Overlooked Cause of Electrocardiographic Changes That Mimic High-Grade Stenosis of the Left Anterior Descending Coronary Artery

Melissa A. Kershaw, DO, and Felix J. Rogers, DO

- (d) Left ventricular hypertrophy, intermittent left bundle branch block, and electrolyte abnormalities can cause T-wave changes that may indicate ischemia.
- (c) Wellens warning is indicative of critical left anterior descending coronary artery stenosis. Hein J.J. Wellens has described characteristic patterns on the electrocardiogram that are indicative of critical left anterior descending stenosis and impending myocardial infarction.
- (b) *Cardiac memory* is the term that best describes the ST- and T-wave changes seen after intermittent ventricular pacing/intermittent left bundle branch block.

**Osteopathic Manipulative
Treatment for
Postural Orthostatic
Tachycardia Syndrome**

Michael B. Goodkin, MD, and
Lawrence J. Bellew, DO

11. (a) In adults, postural orthostatic tachycardia syndrome (POTS) is defined as having orthostatic intolerance on standing for 10 minutes or on a tilt test with an increase in heart rate of at least 30 beats per minute or a heart rate of at least 120 beats per minute. Blood pressure generally does not drop in patients with POTS, and these patients generally do not have orthostatic hypotension.
12. (b) Vasodilators are not a typical treatment for patients with POTS who have low blood volume.

**Answers to the November 2014
Supplement to the JAOA CME Quiz**

1. (b) To determine initial therapy, all patients with asthma should have an initial assessment of asthma severity based on current impairment and future risk.
2. (c) Jonathan is a 31-year-old with a history of asthma. He currently takes a short-acting β_2 -agonist as needed for his symptoms. Recently, his asthma symptoms have worsened, leading his physician to reclassify the asthma as mild persistent. The preferred medication for Jonathan to initiate is a low dose of an inhaled corticosteroid.
3. (c) A patient with mild-persistent asthma is using an inhaled corticosteroid but has needed albuterol almost daily and cannot endure any exercise. His asthma is very poorly controlled.
4. (d) Based on the patient's asthma control in the answer to question 3 above, you should increase his inhaled medium dose of corticosteroid and add a long-acting β -agonist.
5. (a) A physician has decided to initiate a daily controller medication for a patient with persistent asthma. The physician would like to evaluate the patient's level of asthma control during a follow-up visit. The physician should have the patient schedule a follow-up appointment in 2 to 6 weeks.
6. (c) If a physician cannot differentiate a patient with chronic asthma from a patient with chronic obstructive pulmonary disease (COPD) using currently available imaging and lung function testing, the diagnosis should be asthma and COPD.

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