

2006 SAE-P: Cardiopulmonary Rehabilitation and Cancer Rehabilitation

Amy H. Phelan, MD, DVM

Clinical Activity 1.1

- Which statement concerning cardiac rehabilitation in women is **TRUE**?
 - Women are referred to cardiac rehabilitation less frequently and attend it less frequently than do men.
 - Women have a lower dropout rate than men.
 - Women have even greater benefit from cardiac rehabilitation than do men.
 - Nonmedical factors such as transportation and psychosocial impairment tend to be less of an issue for women than men.

Ref: Gallagher R, McKinley S, Dracup K. Predictors of women's attendance at cardiac rehabilitation programs. *Prog Cardiovasc Nurs* 2003;18:121-6.

Clinical Activity 1.2

- A post-coronary artery bypass graft rehabilitation program includes
 - primary prevention education on modifiable risk factors.
 - ambulation on the second postoperative day.
 - upper-extremity aerobic and strengthening exercises in hospital.
 - initiation of an outpatient aerobic program on discharge.

Ref: Bartels MN. Cardiac rehabilitation. In: Grabois M, Garrison SJ, Hart KA, Lehmkuhl LD, editors. *Physical medicine and rehabilitation: the complete approach*. Malden: Blackwell Science; 2000. p 1435-56.

Clinical Activity 1.3

- The New York Heart Association classification of congestive heart failure (CHF) classifies CHF severity based on oxygen consumption and
 - left ventricular ejection fraction.
 - pulmonary and peripheral edema.
 - symptomatic functional level.
 - etiology and age of onset.

Ref: Clinical Activity 1.3.

Clinical Activity 1.3

- The ability to perform aerobic exercise is most related to
 - left ventricular ejection fraction.
 - cardiac output.
 - respiratory oxygen exchange.
 - Blood partial pressure of oxygen.

Ref: Clinical Activity 1.3.

Clinical Activity 1.5

- Severity of peripheral arterial disease is classified according to
 - frequency and severity of lower-extremity claudication.
 - coexisting coronary artery disease and angina.
 - peripheral edema and pulses.
 - ankle-brachial index.

Ref: Clinical Activity 1.5.

Clinical Activity 1.6

- Which statement regarding ventricular arrhythmias and ischemic heart disease is **TRUE**?
 - Patients prone to arrhythmias are recommended to exercise in the supine position to decrease myocardial oxygen demand.
 - Approximately 50% of patients with a history of ventricular arrhythmias will have a ventricular arrhythmia during cardiac rehabilitation.
 - An exercise stress test is used to determine target heart rate, which is set at a level below which arrhythmias are noted.
 - Patients with good exercise tolerance are less likely to experience ventricular arrhythmias during cardiac rehabilitation than patients with poor exercise tolerance.

Ref: Lindsay GM, Hanlon WP, Smith LN, Belcher PR. Experience of cardiac rehabilitation after coronary artery surgery: effects on health and risk factors. *Int J Cardiol* 2003;87:67-73.

Clinical Activity 1.7

- Which physiologic changes in cardiac function occur after heart transplantation?
 - Peak heart rates are typically 25% higher than those of age-matched controls.
 - Resting bradycardia near 50bpm occurs because of sympathetic denervation.
 - Increased stroke volume occurs because of improved systolic function.
 - Diastolic dysfunction occurs because of increased myocardial stiffness.

Ref: (a) Daida H, Squires RW, Allison TG, Johnson BD, Gau GT. Sequential assessment of exercise tolerance in heart transplantation compared with coronary artery bypass surgery after phase II cardiac rehabilitation. *Am J Cardiol* 1996;7:696-700.
(b) Bartels MN. Cardiopulmonary assessment. In: Grabois M, Garrison SJ, Hart KA, Lehmkuhl LD, editors. *Physical medicine and rehabilitation: the complete approach*. Malden: Blackwell Science; 2000. p 351-72.

Clinical Activity 1.9

- Which statement regarding postoperative neurologic and cognitive changes after coronary artery bypass surgery (CABG) is **TRUE**?
 - Each additional hour on bypass doubles the probability of postoperative encephalopathy.
 - Lesions seen on diffusion weight magnetic resonance imaging correlate highly with impairments.
 - Cognitive status at 3 weeks predicts cognitive function at 5 years.
 - Cognitive deficits are most prominent at 1 week after CABG.

Ref: (a) Mullges W, Berg D, Schmidtke A, Weinacker MA, Toyka KV. Early natural course of transient encephalopathy after coronary artery bypass grafting. *Crit Care Med* 2000;28:1808-11.

(b) Stygall J, Newman SP, Fitzgerald G, et al. Cognitive change 5 years after coronary artery bypass surgery. *Health Psychol* 2003;22:579-86.

Clinical Activity 1.12

9. Which statement regarding coronary artery disease in spinal cord injury (SCI) is **TRUE**?
- Cardiovascular disease is the second-leading cause of death for patients with SCI.
 - Aerobic capacity achieved with arm ergometry is equal to that achieved with leg exercise.
 - High-density lipoproteins are reduced in people with complete, high-level, and longer-duration SCI.
 - Dietary advice includes a goal of body mass index less than 15kg/m².

Ref: (a) Raymond J, Davis GM, Climstein M, Sutton JR. Cardiorespiratory responses to arm cranking and electrical stimulation leg cycling in people with paraplegia. *Med Sci Sports Exerc* 1999;31:822-8.

(b) Demirel S, Demirel G, Tukek T, Erk O, Yilmaz H. Risk factors for coronary heart disease in patients with spinal cord injury in Turkey. *Spinal Cord* 2001;39:134-8.

Educational Activity 1.13

10. Which supplement is proven efficacious in lowering lipids?
- Licorice
 - Omega-3 fatty acids
 - Antioxidants
 - Vitamin E

Ref: (a) Chung MK. Vitamins, supplements, herbal medicines, and arrhythmias. *Cardiol Rev* 2004;12:73-84.

(b) Ernst E. Cardiovascular adverse effects of herbal medicines: a systematic review of the recent literature. *Can J Cardiol* 2003;19:818-27.

Educational Activity 2.1

11. Respiratory parameters for ventilator weaning include
- rapid shallow breathing test result greater than 105 breaths per min/L.
 - minute volume greater than 10L/min.
 - static compliance less than 35cmH₂O.
 - negative inspiratory pressure greater than 20cmH₂O.

Ref: Vecchione JJ, Sansone GR, Jawed I, Esan O, Ghumman C, Frengley JD. Criteria for weaning from prolonged ventilator support: how well do they work? [abstract]. *Crit Care Med* 2003;31(Suppl):A99.

Educational Activity 2.2

12. Which cardiopulmonary complication is **NOT** associated with obstructive sleep apnea?
- Ventricular hypertrophy
 - Pulmonary hypertension
 - Left ventricular failure
 - Alveolar hypoventilation

Ref: Flemons WW, Douglas NJ, Kuna ST, Rodenstein DO, Wheatley J. Access to diagnosis and treatment of patients with suspected sleep apnea. *Am J Respir Crit Care Med* 2004;169:668-72.

Educational Activity 2.3

13. In which case would bulbar involvement and acute respiratory failure **NOT** commonly be seen?
- Amyotrophic lateral sclerosis
 - Parkinson's disease
 - Spinal cord injury
 - Multiple sclerosis

Ref: Harrop JS, Sharan AD, Scheid EH Jr, Vaccaro AR, Przybylski GJ. Tracheostomy placement in patients with complete cervical spinal cord injuries: American Spinal Injury Association Grade A. *J Neurosurg* 2004;100(1 Suppl Spine):20-3.

Educational Activity 2.4

14. Which risk factor does **NOT** typically predispose a person with chronic obstructive pulmonary disease to osteopenia and osteoporosis?
- Smoking
 - Decreased physical activity
 - Corticosteroid therapy
 - Increased body mass index

Ref: Sin DD, Man JP, Man SF. The risk of osteoporosis in Caucasian men and women with obstructive airways disease. *Am J Med* 2003;114:10-4.

Educational Activity 2.6

15. For cystic fibrosis patients, the effects of exercise and an active lifestyle include
- improved pulmonary function.
 - increased work capacity.
 - increased ventilatory muscle fatigue.
 - increased exercise-induced airway mucus.

Ref: (a) Orenstein DM, Winnie GB, Altman H. Cystic fibrosis: a 2002 update. *J Pediatr* 2002;140:156-64.

(b) Orenstein DM, Hovell MF, Mulvihill M, et al. Strength vs aerobic training in children with cystic fibrosis: a randomized controlled trial. *Chest* 2004;126:1204-14.

Educational Activity 2.7

16. Which factor predicts increased mortality from pulmonary sarcoidosis?
- African-American descent
 - Supplemental oxygen dependence greater than 2L/min
 - Low mean pulmonary artery pressure
 - Chronic low-dose corticosteroids

Ref: Shorr AF, Davies DB, Nathan SD. Predicting mortality in patients with sarcoidosis awaiting lung transplantation. *Chest* 2003;124:922-8.

Educational Activity 2.8

17. Global Initiative for Obstructive Lung Disease criteria are used to stage levels of chronic obstructive pulmonary disease based on
- clinical signs and symptoms.
 - physical examination findings.
 - pulmonary function tests.
 - current medical illnesses.

Ref: (a) Celli BR. Standards for the optimal management of COPD: a summary. *Chest* 1998;113(4 Suppl):283S-7S.

(b) Celli BR. ATS standards for the optimal management of chronic obstructive pulmonary disease. *Respirology* 1997;2(Suppl 1):S1-4.

Clinical Activity 2.9

18. Which rehabilitation intervention/consideration does **NOT** apply to rehabilitation goals for a person with a lung transplant?
- Addressing psychologic issues of isolation, depression, and anxiety
 - Providing pulmonary toilet and chest physical therapy
 - Educating regarding immunosuppression and rejection
 - Enforcing posttransplantation mobilization precautions

Ref: (a) Palmer SM, Tapson VF. Pulmonary rehabilitation in the surgical patient. Lung transplantation and lung volume reduction surgery. Respir Care Clin North Am 1998;4:71-83.
(b) Downs AM. Physical therapy in lung transplantation. Phys Ther 1996;76:626-42.

Educational Activity 2.10

19. Which tracheostomy tube modification most enhances speech?
- Open, cuffless
 - Large diameter
 - Fenestrated with cuff
 - Valved, cuffless

Ref: Dikeman KJ, Kazandjian MS. Communication and swallowing management of tracheostomized and ventilator-dependent adults. 2nd ed. Clifton Park: Delmar Learning; 2003.

Clinical Activity 3.1

20. Which statement regarding rehabilitation after limb-sparing surgery for osteosarcoma is **TRUE**?
- There is a low risk of deep venous thrombosis.
 - Healing may be delayed secondary to chemotherapy or radiation therapy.
 - Motor strength and gait are preserved in most cases.
 - Incidence of unintentional nerve injury is about the same as for total knee arthroplasty.

Ref: Plotz W, Rechl H, Burgkart R, et al. Limb salvage with tumor endoprostheses for malignant tumors of the knee. Clin Orthop Relat Res 2002;Dec(405):207-15.

Clinical Activity 3.2

21. Causes of isolated lateral hip pain include
- hip joint osteoarthritis.
 - piriformis syndrome.
 - sacroiliac joint dysfunction.
 - lumbosacral radiculopathy.

Ref: Bozic KJ, Rubash HE. The painful total hip replacement. Clin Orthop Relat Res 2004;Mar(420):18-25.

Clinical Activity 3.3

22. Radiation-induced brachial plexopathy is characterized by
- burning or lancinating pain in the distribution of affected nerves.
 - acute onset during the course of radiation treatment.
 - involuntary, repetitive, grouped firing of single motor unit potentials on electromyography.
 - the presence of an infiltrating lesion on magnetic resonance imaging.

Ref: Cross NE, Glantz MJ. Neurologic complications of radiation therapy. Neurol Clin 2003;21:249-77.

Clinical Activity 3.4

23. Which factor does **NOT** contraindicate complete decongestive therapy in a person with lymphedema?

- Acute deep venous thrombosis
- History of radiation therapy to the involved limb
- Active cellulitis
- New pathologic humerus fracture

Ref: Cohen SR, Payne DK, Tunkel RS. Lymphedema: strategies for management. Cancer 2001;92(4 Suppl):980-7.

Clinical Activity 3.5

24. Pain associated with bone metastasis is associated with
- bone marrow infiltration.
 - chronic myositis.
 - bone infarction.
 - involvement of the periosteum.

Ref: Posner JB. Neurologic complications of cancer. Philadelphia: FA Davis; 1995. p 111-42.

Educational Activity 3.6

25. Which activity is outside the purview of psychologists on the cancer rehabilitation team?
- Developing coping skills during treatment
 - Documenting and intervening with respect to cognitive deficits
 - Providing biofeedback training for pain and anxiety
 - Managing medications for depression and anxiety

Ref: (a) Gaze MN, Wilson IM. Handbook of community cancer care. San Francisco: Greenwich Medical Media; 2003.
(b) Mooery S, Greer S. Cognitive behaviour therapy for people with cancer. New York: Oxford Univ Pr; 2002.
(c) Schneider CM, Dennehy CA, Carter SD. Exercise and cancer recovery. Champaign: Human Kinetics; 2003.

Educational Activity 3.7

26. In addition to surgery, treatment for impending pathologic fractures of the femur includes all of the following **EXCEPT**
- bisphosphonates.
 - radiation therapy.
 - bedrest.
 - chemotherapy.

Ref: Cross NE, Glantz MJ. Neurologic complications of radiation therapy. Neurol Clin 2003;21:249-77.

Clinical Activity 3.8

27. Modified radical neck dissection differs from radical neck dissection by sparing the
- ansa hypoglossi.
 - larynx.
 - external jugular vein.
 - spinal accessory nerve.

Ref: Clinical Activity 3.8.

Clinical Activity 3.9

28. Electrodiagnostic findings in a person with multiple myeloma monoclonal antibody and amyloid deposition might include all of the following **EXCEPT**
- distal symmetric axonal sensorimotor polyneuropathy.
 - mononeuropathy multiplex.
 - anterior horn cell disease.
 - demyelinating polyradiculoneuropathy.

Ref: Cross NE, Glantz MJ. Neurologic complications of radiation therapy. Neurol Clin 2003;21:249-77.

Clinical Activity 3.10

29. Whole-brain irradiation for primary and metastatic central nervous system tumors during inpatient rehabilitation
- (a) results in a higher rate of medical transfers.
 - (b) is associated with lower FIM instrument scores at discharge.
 - (c) should not be performed because it interferes with therapy schedules.
 - (d) carries a high risk of acute injury and functional status decline.

Ref: (a) Cross NE, Glantz MJ. Neurologic complications of radiation therapy. Neurol Clin 2003;21:249-77.

(b) Cohen SR, Payne DK, Tunkel RS. Lymphedema: strategies for management. Cancer 2001;92(4 Suppl):980-7.

Clinical Activity 3.11

30. What is the most common tumor associated with Lambert-Eaton myasthenic syndrome?
- (a) Small-cell lung cancer
 - (b) Breast cancer
 - (c) Lymphoma
 - (d) Ovarian cancer

Ref: Cross NE, Glantz MJ. Neurologic complications of radiation therapy. Neurol Clin 2003;21:249-77.