

Examination and Evaluation No. 26 can be completed online.



You are required to complete ALL the information on the *AANA Journal* Course Examination and Evaluation forms in order for your examination to be processed and for you to receive continuing education credits. The information is required to meet the criteria of the American Nurses Credentialing Center Commission on Accreditation.

AANA JOURNAL COURSE No. 26 EXAMINATION INFORMATION UPDATE FOR NURSE ANESTHETISTS

With this issue, the *AANA Journal's* 26th course has been completed. The course consisted of a 6-part series, beginning with the April 2006 issue and concluding in the February 2007 issue. The series was published as follows:

- **Part 1 (April 2006)** – The neurobiology of the human febrile response
- **Part 2 (June 2006)** – Eisenmenger syndrome: An anesthetic conundrum
- **Part 3 (August 2006)** – Aortic stenosis: A review
- **Part 4 (October 2006)** – Itching, the “little” big problem as an orphan symptom
- **Part 5 (December 2006)** – Ludwig angina: Forewarned is forearmed
- **Part 6 (February 2007)** – Perioperative care of patients with cerebral palsy

Each article included objectives for the reader and sources for reference and study.

The examination printed in this issue incorporates material from all 6 articles. The examination consists of 60 multiple choice questions, 10 questions from each article. The examination is clearly marked as to which questions refer to which article. Remember, as you are taking the examination, you are free to refer to the original articles. Note also that there is but 1 correct answer to be marked for each question.

About your continuing education credit

To ensure that a certain level of knowledge has been attained, a minimum of 80% correct answers (48 out of 60) must be achieved. A total of 6 hours of continuing education (CE) credit will be awarded for the successful completion of the examination; partial CE credit will not be awarded.

AANA members will automatically have their 6 CE credits recorded for them. Individuals with record-

keeping contracts through the AANA also will have the credits recorded for them.

The correct answers to the examination will appear in the August 2007 issue of the *AANA Journal*. By keeping a copy of your answers, you will automatically be able to see how you scored.

Complete the answer sheet and evaluation form

It is recommended that you first mark your answers on the examination itself (so that you have your own record). Then, transfer your answers to the answer sheet, which appears on the adjacent page. Be sure to include your name, address, and AANA identification number. You are required to fill out an evaluation of the course, which includes the time required for reading and comprehension of each part. The evaluation is printed on the reverse side of the answer sheet. (Non-AANA members should include a \$30 processing fee—payable to the *AANA Journal* Course—along with their examination answer sheet and evaluation form.)

Important deadline

The examination answers must be postmarked by July 31, 2007. Adequate time must be allowed for the examination to be processed to ensure that all CE credits are recorded prior to the end of the CE year. Mail your answer sheet to:

AANA Continuing Education Department
222 S. Prospect Ave.
Park Ridge, IL 60068-4001
Attn: AANA *Journal* Course

Much success

We hope that you have found this 26th *AANA Journal* course to be of value. We wish you well in its successful completion.

AANA JOURNAL COURSE No. 26 EXAMINATION UPDATE FOR NURSE ANESTHETISTS

(Issued April 2007. Examination and Evaluation No. 26 can be completed online.)

PLEASE PRINT.

NAME: _____
(LAST) (FIRST) (MIDDLE)

ADDRESS: _____
(STREET)

(CITY) (STATE) (ZIP CODE)

AANA MEMBERSHIP ID NUMBER:

To ensure that your examination will be processed, you must complete every section of the evaluation and mail it with this examination answer sheet to: American Association of Nurse Anesthetists, 222 S. Prospect Ave., Park Ridge, IL 60068-4001. Attn: AANA Journal Course

If you are not an AANA member, check here. Be sure to enclose your \$30 processing fee payable to AANA.

Please circle one response for each question.

For example, 36. 1 2 4 would indicate that the third alternative was chosen in response to question 36.

Please erase completely any changed responses.

	Circle one response (1-4) for each question				Chapter objective reference		Circle one response (1-4) for each question				Chapter objective reference
1.	1	2	3	4	1.1	31.	1	2	3	4	4.1
2.	1	2	3	4	1.1	32.	1	2	3	4	4.1
3.	1	2	3	4	1.2	33.	1	2	3	4	4.2
4.	1	2	3	4	1.2	34.	1	2	3	4	4.2
5.	1	2	3	4	1.3	35.	1	2	3	4	4.3
6.	1	2	3	4	1.3	36.	1	2	3	4	4.3
7.	1	2	3	4	1.4	37.	1	2	3	4	4.4
8.	1	2	3	4	1.4	38.	1	2	3	4	4.4
9.	1	2	3	4	1.4	39.	1	2	3	4	4.5
10.	1	2	3	4	1.5	40.	1	2	3	4	4.5
11.	1	2	3	4	2.1	41.	1	2	3	4	5.1
12.	1	2	3	4	2.2	42.	1	2	3	4	5.1
13.	1	2	3	4	2.4	43.	1	2	3	4	5.2
14.	1	2	3	4	2.5	44.	1	2	3	4	5.2
15.	1	2	3	4	2.1	45.	1	2	3	4	5.3
16.	1	2	3	4	2.2	46.	1	2	3	4	5.3
17.	1	2	3	4	2.3	47.	1	2	3	4	5.4
18.	1	2	3	4	2.3	48.	1	2	3	4	5.4
19.	1	2	3	4	2.3	49.	1	2	3	4	5.5
20.	1	2	3	4	2.2	50.	1	2	3	4	5.5
21.	1	2	3	4	3.1	51.	1	2	3	4	6.1
22.	1	2	3	4	3.1	52.	1	2	3	4	6.1
23.	1	2	3	4	3.2	53.	1	2	3	4	6.2
24.	1	2	3	4	3.2	54.	1	2	3	4	6.2
25.	1	2	3	4	3.3	55.	1	2	3	4	6.3
26.	1	2	3	4	3.3	56.	1	2	3	4	6.3
27.	1	2	3	4	3.4	57.	1	2	3	4	6.4
28.	1	2	3	4	3.4	58.	1	2	3	4	6.4
29.	1	2	3	4	3.5	59.	1	2	3	4	6.5
30.	1	2	3	4	3.5	60.	1	2	3	4	6.5

AANA Code No.: 28327; Expiration date: July 31, 2007

Time required to complete this answer sheet - check ONE box below.

0-60 minutes 61-90 minutes 91-120 minutes 121-150 minutes 151-180 minutes



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For your examination to be processed, you must complete every section in this evaluation including time required for reading and comprehension and mail it with the examination to the AANA.

AANA JOURNAL COURSE—No. 26—2007 EVALUATION FORM

Please evaluate the *AANA Journal* Course in each of the categories listed below. Circle the number that corresponds with the rating scale for the overall course evaluation, as well as for each part.

1 = Poor 2 = Fair 3 = Average 4 = Very Good 5 = Excellent

Part 1: *The neurobiology of the human febrile response*

CHUCK BIDDLE, CRNA, PhD

- 1. Content related to objectives.....1 2 3 4 5
- 2. Content organized and easy to follow.....1 2 3 4 5
- 3. Content relevant and current.1 2 3 4 5

OBJECTIVES

	Objectives				
	Not met	Met	Met	Met	Met

- 1.1 Understand the processes that define and maintain thermoregulation.1 2 3 4 5
- 1.2 Describe the central role of the hypothalamus in generating a febrile response.1 2 3 4 5
- 1.3 Discuss the roles of the blood-brain barrier and the circumventricular organ system as they pertain to the genesis of a febrile response.1 2 3 4 5
- 1.4 Discuss the value and purpose of fever and whether it should be treated routinely.1 2 3 4 5
- 1.5 Recognize the major causes of postoperative fever, and develop a rationale for intervention.....1 2 3 4 5

Time required for reading and comprehension of Part 1 of Journal course text: _____ minutes ←

Part 2: *Eisenmenger syndrome: An anesthetic conundrum*

JOSEPH A. JOYCE, CRNA, BS

- 1. Content related to objectives.....1 2 3 4 5
- 2. Content organized and easy to follow.....1 2 3 4 5
- 3. Content relevant and current.1 2 3 4 5

OBJECTIVES

	Objectives				
	Not met	Met	Met	Met	Met

- 2.1 List the anatomic and physiologic factors involved in the development of Eisenmenger syndrome.1 2 3 4 5
- 2.2 Describe complications commonly associated with Eisenmenger syndrome.1 2 3 4 5
- 2.3 Name 2 medications useful in the treatment of Eisenmenger syndrome.1 2 3 4 5
- 2.4 State the most important physiologic factors to consider in choosing the anesthetic technique for a patient with Eisenmenger syndrome.1 2 3 4 5
- 2.5 Describe the monitoring requirements during anesthesia for a patient with Eisenmenger syndrome.1 2 3 4 5

Time required for reading and comprehension of Part 2 of Journal course text: _____ minutes ←

continued next page


Part 3: Aortic stenosis: A review

DAVID PHILLIPS, CRNA, MSN

1. Content related to objectives.....	1	2	3	4	5
2. Content organized and easy to follow	1	2	3	4	5
3. Content relevant and current	1	2	3	4	5

OBJECTIVES

	<u>Objectives</u>				
	<u>Not met</u>				<u>Met</u>
3.1 List the most common causes of aortic stenosis.....	1	2	3	4	5
3.2 Describe the pathophysiology of aortic stenosis.....	1	2	3	4	5
3.3 Differentiate mild, moderate, and severe aortic stenosis.....	1	2	3	4	5
3.4 Explain the significance of aortic stenosis in patients undergoing noncardiac surgery.....	1	2	3	4	5
3.5 Discuss the anesthetic management of patients with aortic stenosis.....	1	2	3	4	5

Time required for reading and comprehension of Part 3 of Journal course text: _____ minutes 

Part 4: Itching, the “little” big problem as an orphan symptom

MATTHEW TOOMEY, RN, BSN; CHUCK BIDDLE, CRNA, PhD

1. Content related to objectives.....	1	2	3	4	5
2. Content organized and easy to follow.....	1	2	3	4	5
3. Content relevant and current	1	2	3	4	5

OBJECTIVES

	<u>Objectives</u>				
	<u>Not met</u>				<u>Met</u>
4.1 Understand the physiology of itch.....	1	2	3	4	5
4.2 Differentiate between common variants of itch, including neurogenic, neuropathic, senile, and psychogenic.....	1	2	3	4	5
4.3 Describe the various endogenous mediators of itch.	1	2	3	4	5
4.4 Recognize common characteristics of neuraxial opioid-induced itch.....	1	2	3	4	5
4.5 Discuss common treatment modalities for itch.	1	2	3	4	5

Time required for reading and comprehension of Part 4 of Journal course text: _____ minutes 

Part 5: Ludwig angina: Forewarned is forearmed

MICHAEL J. KREMER, CRNA, DNSc, FAAN; TRACY BLAIR, CRNA, MSN

1. Content related to objectives.....	1	2	3	4	5
2. Content organized and easy to follow.....	1	2	3	4	5
3. Content relevant and current	1	2	3	4	5

OBJECTIVES

	<u>Objectives</u>				
	<u>Not met</u>				<u>Met</u>
5.1 Describe the pathogenesis of Ludwig angina.....	1	2	3	4	5
5.2 Discuss conservative and aggressive treatment options for this disease.....	1	2	3	4	5
5.3 Elucidate the anesthetic implications of Ludwig angina.....	1	2	3	4	5

- 5.4 Describe airway management considerations for patients with Ludwig angina.....1 2 3 4 5
 5.5 Describe the role of the teeth and gums in the genesis of Ludwig angina.1 2 3 4 5

Time required for reading and comprehension of Part 5 of Journal course text: _____ minutes ←

Part 6: Perioperative care of patients with cerebral palsy

JOHN AKER, CRNA, MS; DAVID J. ANDERSON, MD

1. Content related to objectives.....1 2 3 4 5
 2. Content organized and easy to follow.....1 2 3 4 5
 3. Content relevant and current1 2 3 4 5

OBJECTIVES	Objectives				
	Not met			Met	
6.1 Detail the epidemiology and accompanying pathophysiology that accompanies cerebral palsy.	1	2	3	4	5
6.2 List the classifications and clinical manifestations of cerebral palsy.	1	2	3	4	5
6.3 Describe the potential side effects of oral antispasticity drugs, and list the advantages of intrathecal baclofen administration for patients with cerebral palsy.	1	2	3	4	5
6.4 Prepare an intraoperative anesthetic care plan for a patient with cerebral palsy.	1	2	3	4	5
6.5 Describe the pharmacodynamics of skeletal muscle relaxant and sedative-hypnotic administration in patients with cerebral palsy.	1	2	3	4	5

Time required for reading and comprehension of Part 6 of Journal course text: _____ minutes ←

Overall Course Evaluation

A. Content (Parts 1-6)

1. Relates to objectives and overall purpose/goals1 2 3 4 5
 2. Based on current professional information1 2 3 4 5
 3. Level appropriate for identified intended audience.....1 2 3 4 5
 4. Corresponds with learner objectives identified at beginning of each part1 2 3 4 5

B. Teaching Methods (Parts 1-6)

1. Self-test questions facilitated the learning process1 2 3 4 5

C. Relevancy to Practice (Parts 1-6)

1. Information presented can be applied to my practice1 2 3 4 5
 2. Information provided is helpful in achieving my professional goals1 2 3 4 5
-
-



AANA JOURNAL COURSE No. 26 EXAMINATION UPDATE FOR NURSE ANESTHETISTS

Please circle 1 response for each question.

After you have marked your answers on this examination, transfer them to the answer sheet provided. Examination and Evaluation No. 26 also is available online.

Mail your answer sheet and evaluation form to:
American Association of Nurse Anesthetists
222 S. Prospect Ave.
Park Ridge, IL 60068-4001
Attn: AANA Journal Course

The examination and evaluation must be postmarked by July 31, 2007.

The neurobiology of the human febrile response

1. Normal temperature variation in healthy humans is best described by:
 1. slightly greater than 98°F with nadir in the early morning and peak in the late afternoon
 2. slightly less than 98°F with nadir in the early morning and again in the late afternoon
 3. slightly less than 98°F with a peak in the early morning and nadir in the late afternoon
 4. slightly greater than 99°F with nadir in the early morning and peak in the late afternoon
2. The skin, as the largest “organ” of the body, plays an essential role in thermoregulation primarily due to:
 1. an absence of vasculature, functioning independently of the nervous system
 2. its capacity to allow heat input and egress without alteration of blood flow
 3. its ability to generate large amounts of heat using adenosine substrate
 4. its large and diffuse venous plexus allowing it to act as a “radiator”
3. Elevating the “set-point” of the hypothalamus activates neurons in the vasomotor center resulting in:
 1. vasodilation, shivering, alertness, and sweating
 2. vasoconstriction, shivering, somnolence, and suppression of sweating
 3. vasodilation, muscular relaxation, sweating, and enhanced wakefulness
 4. vasoconstriction, muscular relaxation, enhanced wakefulness, fluid retention
4. Example of pyrogens include:
 1. certain viruses
 2. certain bacteria
 3. certain cytokines
 4. all the above
5. Select the true statement regarding the blood brain barrier (BBB):
 1. limits transport of material from blood to brain using physical and metabolic processes
 2. all pyrogenic material readily traverses the BBB
 3. it is a specialized and diffusely thin network of cancellous bone
 4. none of the above are true
6. The circumventricular organ system:
 1. has an intrinsic neuronal connection to the hypothalamus
 2. has many diverse functions in the body
 3. detects the presence of pyrogens that may not cross the BBB
 4. all the above
7. Cyclooxygenase (COX) activity is:
 1. inhibited by phospholipase A₂
 2. inhibited by acetaminophen that has been oxidized by the P-450 system
 3. inhibited by arachidonic acid
 4. unimportant in mounting a febrile response
8. Corticosteroids may act as antipyretics by which of the following mechanisms?
 1. depression of the pineal gland
 2. blocking phospholipase A₂ critical to the expression of arachidonic acid
 3. alpha blockade promoting vasodilation and heat loss
 4. stimulating thirst, thus promoting cool fluid intake
9. Which of the following has *not* been proposed to be a possible value of fever?
 1. impaired bacterial and viral replication
 2. production of acute phase reactants by the liver
 3. exciting the cerebral cortex to a higher level of awareness
 4. enhanced immunological response
10. The majority of *early onset* postoperative fevers are probably due to:
 1. foreign body reaction
 2. trauma causing release of cytokines
 3. hepatitis
 4. infection

Eisenmenger syndrome: An anesthetic conundrum

11. Eisenmenger syndrome is cured by which of the following:
 1. continuous epoprostenol infusion combined with bosentan therapy
 2. closure of the congenital heart defect as soon as possible after the diagnosis
 3. heart-lung transplant or bilateral lung transplant with repair of the heart defect
 4. heart transplant
12. Therapeutic phlebotomy:
 1. is an ancient, antiquated treatment procedure abandoned in the 1800s
 2. must be accompanied by a volume-for-volume fluid replacement
 3. can be easily accomplished through scheduled blood donations
 4. must be scheduled whenever the hematocrit value reaches 50%
13. Decreasing which of the following is most detrimental to an Eisenmenger syndrome patient?
 1. hematocrit
 2. systemic vascular resistance
 3. pulmonary vascular resistance
 4. intracranial pressure
14. Which of the following monitoring devices is *least* important in managing general anesthesia for the patient with Eisenmenger syndrome?
 1. arterial blood pressure
 2. central venous pressure
 3. double burst stimulation
 4. heart rate
15. Left-to-right shunting produces which of the following?
 1. increased right ventricular stroke volume plus shear forces within the pulmonary vasculature
 2. better peripheral tissue oxygenation
 3. reduction in cardiac work index
 4. better central circulation
16. Name the compensatory mechanism the body uses to increase tissue oxygenation:
 1. left-to-right shunting
 2. right-to-left shunting
 3. hyperuricemia
 4. polycythemia or erythrocytosis
17. Bosentan is a neurohormone that exerts its actions on:
 1. coronary arteries
 2. alveoli and bronchioles
 3. endothelium and vascular smooth muscle
 4. acetylcholine receptors
18. Which of the following is *not* a pharmacologic action of epoprostenol:
 1. direct vasodilatation of pulmonary vascular beds
 2. activation of platelet aggregation
 3. direct vasodilatation of systemic arterial vascular beds
 4. bronchodilation
19. Which of the following potentiates the nitric oxide-cyclic guanosine monophosphate (NO-cGMP) pathway?
 1. sildenafil combined with L-arginine
 2. sildenafil combined with nitric oxide
 3. L-arginine combined with nitric oxide
 4. L-arginine combined with epoprostenol and bosentan
20. Which of the signs and symptoms of Eisenmenger syndrome also is one of its complications?
 1. cholelithiasis
 2. gout
 3. hemoptysis
 4. fatigue

Aortic stenosis: A review

21. All of the following conditions can contribute to the development of aortic stenosis EXCEPT:
 1. advanced age
 2. penicillin therapy
 3. calcific tricuspid valve
 4. rheumatic heart disease
22. The leading cause of aortic stenosis in the United States before the development of antibiotics was:
 1. cholera
 2. rubella
 3. rheumatic heart disease
 4. pneumonia
23. The main compensatory response to aortic stenosis is:
 1. increased heart rate
 2. increased sympathetic tone
 3. polycythemia
 4. left ventricular hypertrophy
24. The classic triad of symptoms seen in aortic stenosis is:
 1. angina, dyspnea, and syncope
 2. dyspnea, cyanosis, and lethargy
 3. palpitations, dyspnea, and angina
 4. lethargy, palpitations, and angina
25. A patient with an aortic valve area of 0.6 and a pressure gradient of 74 mm Hg is considered to have:
 1. a normal aortic valve
 2. mild aortic stenosis
 3. moderate aortic stenosis
 4. severe aortic stenosis

26. During the preoperative assessment of a patient with aortic stenosis, which of the following findings would be the most alarming?
1. a systolic murmur
 2. an aortic valve area of 3.0 cm²
 3. frequent episodes of dyspnea, angina, and syncope
 4. an aortic pressure gradient of 39 mm Hg
27. Patients with significant aortic stenosis presenting for noncardiac surgery are at increased risk for developing which perioperative complication?
1. myocardial infarction
 2. ventricular arrhythmias
 3. heart failure
 4. all of the above
28. A patient presenting with severe aortic stenosis and a recent history of dyspnea and syncope presents for elective hip arthroplasty. What is the appropriate course of action?
1. proceed with a general anesthetic
 2. proceed with a spinal anesthetic
 3. postpone the surgery for 2 hours, give lasix, oxygen, and an alpha-adrenergic blocker
 4. patient should first be evaluated for aortic valve replacement or preoperative balloon valvuloplasty
29. Anesthetic management of the patient with aortic stenosis includes all of the following EXCEPT:
1. maintaining a heart rate of 80 to 120 beats per minute
 2. invasive hemodynamic monitoring
 3. preventing hypotension
 4. optimizing fluid status to maintain stroke volume
30. Some authorities consider severe aortic stenosis to be a contraindication to spinal anesthesia primarily on the basis of:
1. risk of hypotension
 2. risk of peripheral nerve injury
 3. risk of resistance to local anesthetics
 4. risk of spinal cord injury
- Itching, the "little" big problem as an orphan symptom**
31. Nerve impulses responsible for pruritus travel along which type of nerve fiber?
1. motor fibers (type A)
 2. autonomic fibers (type B)
 3. specialized pain fibers (type C)
 4. none of the above
32. Which of the following is *not* noted to be an endogenous mediator/transmitter for itch?
1. serotonin
 2. cytokines and neuropeptides
 3. histamine
 4. epinephrine
33. Neurogenic itch is:
1. induced centrally
 2. a result of trauma to an afferent nerve tract
 3. attributed to lower water content in the skin
 4. originates in the skin from inflammation
34. Choose the correct statement:
1. psychogenic itch is commonly found in the elderly due to inducement of pruritogenic mediators
 2. neuropathic itch is frequently seen with peripheral nerve lesions or injury
 3. neurogenic itch is a result of a microbial infection
 4. all of the above are true
35. Serotonin:
1. releases histamine peripherally
 2. is not pruritogenic
 3. attenuates sympathetically mediated itch
 4. releases cytokines peripherally
36. Which chemical is *not* pruritogenic, but potentiates histamine's pruritogenicity?
1. dopamine
 2. interleukin-2
 3. pseudocholinesterase
 4. prostaglandins
37. Intrathecally administered _____ has demonstrated the highest incidence of pruritus.
1. sufentanil
 2. clonidine
 3. fentanyl
 4. morphine
38. Facial itching is a result of itch receptor activation along which nerve?
1. trigeminal
 2. vagus
 3. oculomotor
 4. optic
39. How does propofol (Diprivan) work in reducing pruritus?
1. blocks serotonin receptors in the subnucleus caudalis
 2. depresses posterior horn nerve transmission
 3. prevents histamine release from mast cells
 4. directly inhibits kappa-opioid receptors
40. Choose the correct statement:
1. nonsteroidal anti-inflammatory drugs attenuate prostaglandin enhanced C fiber transmission
 2. antihistamines are beneficial for peripherally mediated itch

3. mixed opioid agonist-antagonists block mu receptors while activating kappa receptors
4. all of the above are correct statements

Ludwig angina: Forewarned is forearmed

41. Ludwig angina (LA) frequently results from which of the following?
 1. septicemia
 2. vasospasm
 3. dental infection
 4. hypoxia
42. Tissue distortion in which plane accounts for airway compromise in LA?
 1. superficial layer of deep cervical fascia
 2. inner cortex of the mandible
 3. the submandibular space
 4. the cervical plexus
43. Observation may be a reasonable option for patients with LA under which conditions?
 1. the patient exhibits cyanosis and drooling
 2. when there is not obvious airway compromise
 3. after institution of steroid therapy
 4. in the absence of adequate resources
44. A patient presenting with a submandibular mass, stridor, and drooling is likely to need which type of treatment?
 1. observation only
 2. antibiotics pending culture and sensitivity results
 3. airway management and antibiotic therapy
 4. oxygen therapy
45. In patients with LA, which of the following variables can be related to the development of laryngospasm?
 1. Fowler's position
 2. supine position
 3. humidified inspired oxygen
 4. heliox
46. Preoperative diagnostic data that may be helpful to clinicians caring for LA patients include which of the following?
 1. arterial blood gases
 2. ventilation-perfusion scans
 3. pulmonary function tests
 4. imaging studies of the head and neck
47. A 47-year-old patient with a history of intravenous drug abuse and dental abscesses presents emergently with marked submandibular swelling and trismus. Which of the following is a defensible plan for airway management?
 1. blind nasal intubation
 2. rapid sequence induction

3. blind oral intubation
4. fiberoptic nasotracheal intubation with surgical standby for possible tracheotomy

48. For the patient above, what does current evidence suggest regarding orotracheal intubation?
 1. the benefit of this technique is outweighed by any risk
 2. administration of an antispasmodic should precede orotracheal intubation
 3. disease-related edema makes this approach less desirable
 4. the patient should breathe spontaneously when this technique is used
49. The incidence of LA has been affected by which of the following factors?
 1. antibiotic therapy and dental hygiene
 2. complementary and alternative medicine
 3. respiratory therapy
 4. early incision and drainage
50. Approximately what percentage of LA cases result from dental or gingival infection?
 1. 90%
 2. 70%
 3. 50%
 4. 30%

Perioperative care of patients with cerebral palsy

51. Central nervous system maturation begins during embryogenesis and continues until:
 1. birth
 2. 6 months of age
 3. 1 year of age
 4. 2 years of age
52. Cerebral palsy registries from Australia, The United Kingdom, Sweden, and the United States report the incidence to be:
 1. 0.5 to 1.0 per 1,000 live births
 2. 1.0 to 1.5 per 1,000 live births
 3. 1.5 to 2.0 per 1,000 live births
 4. 2.0 to 2.5 per 1,000 live births
53. The contemporary literature suggests that perinatal asphyxia is responsible for what percentage of new cerebral palsy cases?
 1. 1% to 2%
 2. 4% to 5%
 3. 6% to 10%
 4. 12% to 15%
54. Spasticity in the cerebral palsy patient will produce all of the following EXCEPT:
 1. joint contractures

2. musculoskeletal pain
 3. seizures
 4. joint subluxation
55. Which of the following oral anti-spasticity agents is associated with hepatotoxicity?
1. baclofen
 2. tizanidine
 3. diazepam
 4. clorazepate
56. Which of the following is *not* associated with intrathecal baclofen pump implantation?
1. rocephalus
 2. fistula formation
 3. infection
 4. electronic pump malfunction
57. Endotracheal intubation of the cerebral palsy patient may be difficult as a result of:
1. laxity of the muscles of the head and neck
 2. temporomandibular joint ankylosis
 3. dental crowding
 4. tongue thrusting
58. The minimum alveolar concentration of inhalation agents in the cerebral palsy patient is:
1. increased
 2. increased in the quadriplegic patient
 3. decreased
 4. is equivalent to similar-aged noncerebral palsy patients
59. The cerebral palsy patient is:
1. resistant to vecuronium
 2. resistant to succinylcholine
 3. sensitive to mivacurium
 4. sensitive to pancuronium
60. The cerebral palsy patient is sensitive to the effects of sedative/hypnotics because of:
1. increased airway tone
 2. generalized hypotonia
 3. lack of an effective cough
 4. uncoordinated fine motor activity