Review for Credentialing

You should review the APC workbook and read the new law and rules for yourself. This is meant to be a guide only, as the person that drafted the guide has no knowledge of the test questions.

1. In what facial functional zone are optometric surgical procedures performed?
    a. Zone 3
2. What should an optometric physician do if a lesion is suspicious for malignancy?
    a. Refer out!
3. What is the gold standard used for skin preparation prior to performing an ophthalmic surgical procedure?
    a. Povidone-iodine (Betadine solution)
4. How long must Betadine solution be in contact with the skin prior to the start of an ophthalmic surgical procedure?
    a. 3 minutes and must remain on the skin for prolonged effectiveness
5. What injections are specifically excluded in the new law?
    a. Intravenous
    b. Intraocular
6. LOCAL ANESTHETIC AGENTS
    a.

Type	Name	Concentration (%)	Onset	Duration (minutes)	Max Adult Dose
Esters	Procaine (Novocaine)	2	Slow	15-30 plain 30-90 epi	350 mg plain 600 mg epi
	Tetracaine (Pontocaine)	0.25	Slow	120-240 plain 240-480 epi	100 mg plain 200 mg epi
	Chloroprocaine (Nesacaine)	2	Fast	15-30 plain 30-90 epi	800 mg plain 1000 mg epi
Amides	Lidocaine (Xylocaine)	0.5-2	Fast	30-120 plain 60-400 epi	300 mg plain 500 mg epi
	Etidocaine (Duranest)	0.5-2	Fast	120-240 plain 240-480 epi	300 mg plain 400 mg epi
	Mepivacaine (Carbocaine)	1	Moderate	30-120 plain 60-400 epi	300 mg plain 500 mg epi
	Bupivacaine (Marcaine)	0.25-0.75	Slow	120-240 plain 240-480 epi	175 mg plain 225 mg epi

7. Why is epinephrine contraindicated in contaminated wounds?
    a. Diminishes blood flow
    b. Increases risk of infection
8. What is an alternative to epinephrine for use in ophthalmic surgical procedures?
    a. Xylocaine
9. What substance is normally used for submitting specimen samples to a lab after biopsy?
    a. Formalin - Sebaceous cell carcinoma is an exception for use with formalin.
10. What is the most common location of eyelid cancers?
    a. Lower eyelid (44%)
11. What criteria represent the most commonly used clinical guide for early diagnosis of melanoma?
    a. The ABCDE criteria
        i. A: Asymmetry - Moles that have an asymmetrical appearance
        ii. B: Border - A mole that appears blurry and/or jagged edges
        iii. C: Color - A mole that has more than one color
        iv. D: Diameter - Moles with a diameter larger than a pencil eraser (6mm or ¼ inch)
        v. E: Evolution - A mole that has gone through sudden changes in size, shape or color
12. What are some methods of incisional biopsy?
    a. Punch
    b. Shave
    c. Ellipse
13. How can pain be reduced for injection of local anesthetic?
    a. Buffer the solution with bicarbonate
    b. Warm the solution to body temperature
    c. Use a thinner needle
    d. Inject into the deeper subcutaneous tissue plane (not possible in the eyelid!)
    e. Slow the rate of injection
    f. Inject from inside the wound margins
    g. Pretreat with a topical anesthetic agent
14. Which type of anesthetic has the highest rate of known allergic response?
    a. Ester (proparacaine, tetracaine) - Allergic reactions to amide anesthetic (lidocaine) are exceedingly rare
15. Esters degrade into what compound similar to methylparaben?
    a. Para-amino benzoic acid (PABA)
16. Allergy to preservatives, such as methylparaben, are much more likely than lidocaine.
17. Central Nervous System (CNS) reactivity associated with local anesthetic use:
    a. Circumoral numbness
    b. Tinnitus
    c. Tremor
    d. Visual disturbance
    e. Altered mental status
    f. Seizure

18. Cardiovascular or cardiopulmonary reaction associated with anesthetic use:
    a. Hypotension
    b. Respiratory depression
    c. Bradycardia
    d. Arrhythmia
19. Epinephrine may interact with other medications such as:
    a. Beta blockers
    b. Tricyclic antidepressants/MAO inhibitors
    c. Hypoglycemics/insulin
    d. Thyroid hormones
    e. Oxytocics
20. Epinephrine may be contraindicated because of other comorbidities such as:
    a. Angle-closure glaucoma
    b. Organic brain syndrome
    c. Coronary insufficiency
    d. Peripheral vascular disease
    e. Labor and delivery
21. Epinephrine is contraindicated:
    a. In contaminated wounds because epinephrine can:
        i. Diminish ↓blood flow
        ii. Increase ↑risk of infection
    b. Do NOT use in patients with sulfite sensitivity
    c. Do NOT use in patients taking monoamine oxidase inhibitors (antidepressants)
    d. Do NOT use in patients taking tricyclic antidepressants … ⇧BP
    e. Do NOT use in patients with peripheral vascular disease
22. Epinephrine should be used with caution (relative contraindication) in patients with:
    a. Diabetes
    b. Hypertension
    c. Arteriosclerosis
    d. Thyrotoxicosis
    e. Heart block
    f. Cerebrovascular disease
23. Epinephrine is ALWAYS contraindicated:
    a. Fingers
    b. Toes
    c. Ala of Nose
    d. Earlobes
    e. Penis
24. Do NOT use epinephrine if:
    a. Recent myocardial infarction (< 6 mos. or symptomatic)
    b. Recent cardiovascular event (< 6 mos. or untreated)
    c. High-risk arrhythmia
    d. Uncontrolled or severe hypertension
    e. Unstable angina

f. Patients taking beta blockers
g. Patients taking Digoxin
h. Patients taking anticonvulsants (eg., phenytoin)
i. Patients taking MAOI, or Tricyclic antidepressants
j. Uncontrolled diabetes mellitus
k. Uncontrolled hyperthyroidism
l. Moderate or severe asthma (avoid sulfite-containing LA)
m. Documented allergy to epinephrine
n. Pheochromocytoma (catecholamine producing tumor)
o. Drug abuse - cocaine, methamphetamine, amphetamine.....if there is known use within last 24 hours

25. What are alternative options for injections with allergic patients?
    a. For quick procedures...perhaps no anesthetic?
    b. Use preservative free single-dose vials
    c. Use a cooling agent (e.g., ice, liquid nitrogen, ethyl chloride -but not in the eye!)
        i. In reality cooling agents only offers a few seconds of anesthesia
    d. Avoid methylparaben preservatives
    e. Substitute an amide for an ester if that was the issue
    f. Use sterile saline 0.9%
        i. preferably preserved with benzyl alcohol
    g. Use diphenhydramine (Benadryl) 50 mg/5mL
26. Can diphenhydramine be used as an anesthetic?
    a. Diphenhydramine (Benadryl) iv solution (50 mg/1-mL) can be used to prepare an anesthetic substitute of diphenhydramine 50 mg/5-mL in allergic patients
    b. Degree of anesthesia comparable to lidocaine 1%
    c. Stings more than lidocaine
        i. Buffering does not help
    d. Onset of action ~5 minutes
    e. Duration anywhere from 15 to 120minutes
27. How do you prepare an injection using diphenhydramine as an ophthalmic surgery anesthetic?
    a. To prepare a solution for injection:
        i. Mix 1 vial of diphenhydramine iv 50mg/mL with 4-mL of sterile 0.9% saline. The resulting concentration of the solution is 50 mg/5-mL (or 10 mg/mL).
        ii. Draw up and inject 1 to 5-mL (10 to 50 mg) in place of other anesthetic solution.
    b. DO NOT USE for nerve blocks!
28. When is the use of Lidocaine (Xylocaine) 0.5, 1, or 2% indicated:
    a. Can cause vasodilation
    b. Duration 30 - 60 min.
    c. Use in contaminated wounds!
    d. Use in presence of vascular disease
    e. Use in immunocompromised pt.

f. Use if cerebrovascular risk present
g. Use if cardiovascular risk present
h. Use for nerve blocks

29. When is Lidocaine (Xylocaine) with epinephrine 0.5, 1, or 2% indicated?
    a. Causes vasoconstriction
    b. Longer duration than plain lidocaine
    c. Useful in highly vascular areas like the eyelids
    d. Improves visualization of surgical field
    e. Use in clean wounds
30. Bupivacaine 0.25% (Marcaine or Sensorcaine) uses:
    a. Use only 0.25% infiltrative anesthesia
    b. Has a longer duration than lidocaine
    c. Has a slower onset than lidocaine
    d. Can be mixed 50/50 with lidocaine for a quick acting & long lasting mixture
31. What is most likely to occur if a practitioner is injecting while advancing the needle?
    a. Intravascular injection with systemic side effects
        i. This is avoided by injecting only while withdrawing the needle
32. What are the most common side effects of injecting too much anesthetic?
    a. Tissue distortion / May distort lesion borders
33. To minimize the pain of injection never inject with larger than _____ gauge needle
    a. 25 (Use a 27 or 30-gauge needle)
34. How do you mix a buffered solution?
    a. Simply mix 1 part sodium bicarbonate 8.4% solution to 9 parts anesthetic solution
    b. Best used immediately
    c. Stable if refrigerated for about 1 week
    d. Always warm to body temp before use!
    e. Final solution may appear turbid or cloudy. This has no effect on it's action.
    f. Buffered lidocaine should not be stored as it degrades within a few hours.
    g. Remember the ratio is typically 1 part sodium bicarbonate solution to 9 parts anesthetic solution. Some references state that a mixture of 1 part bicarbonate to 10 parts anesthetic is equally effective and easier to calculate.
35. What are the most common manifestations of systemic allergic reactions from local anesthetics?
    a. Lightheadedness
    b. Nausea/vomiting
    c. Pruritus/urticaria
    d. Edema
    e. Hypotension/Syncope
    f. Cardiovascular collapse
36. Management of allergic reactions:
    a. Depending on severity Call 911
    b. Oral Benadryl for minor local reactions
    c. Epinephrine (EpiPen®)/Auvi-Q if warranted for severe hypotension/anaphylaxis/laryngeal swelling

    d. Rapid replacement of volume with colloid is the definitive therapy for true anaphylaxis
37. What are common complications of CNS Toxicity from local anesthetics?
    a. Seizure
    b. Circumoral numbness
    c. Lightheadedness
    d. Muscular twitching
    e. Tinnitus
    f. Visual disturbances
    g. Altered mental state
38. Management of CNS toxicity:
    a. Stop the offending agent
    b. Call 911
    c. Oxygen (4L/min)
    d. Use a mask NOT a nasal cannula
    e. Support ventilation if needed
    f. Alert patient can be asked to hyperventilate
39. What are some cardiovascular/cardiopulmonary complications of local anesthetics?
    a. Cardiovascular toxicity
        i. Arrhythmias
        ii. Bradycardia
        iii. Respiratory depression
        iv. Hypotension
        v. Exacerbation of congestive heart failure
40. How are cardiovascular/cardiopulmonary complications of local anesthetics managed?
    a. Management of Cardiovascular toxicity
    b. CALL 911
    c. Initiate BLS/CPR
    d. ACLS for serious rhythm disturbances
    e. Emergency Department
    f. Cardiology consult
41. What is a rare complication of local anesthetics that causes oxidation of iron in the hemoglobin molecule and renders red blood cells incapable of transporting oxygen?
    a. Methemoglobinemia
42. Chalazion treatment options:
    a. Medical (“Conservative”) therapy
        i. Specific approaches vary
            1. Warm compresses
            2. Lid Scrubs
            3. Doxycycline
            4. Topical antibiotic/steroid
        ii. Success rate?
            1. Literature varies
            2. Variation in practitioner preferences

3. Likely 50-75% effective

iii. Indications for medical therapy
1. Frequently first line of treatment
2. Small lesion (< 6 mm)
3. Lesion present less than 6 months
4. Lesion in medial aspect of lid near punctum
5. Patient choice of treatment

iv. Contraindications for medical therapy?
1. If doxycycline is contraindicated

v. Risks and Complications of medical therapy
1. Treatment failure
2. Drug hypersensitivity

b. Intralesional steroid injection
i. Injection of triamcinolone acetonide (Kenalog) directly into the chalazion
ii. Success rate 75-90%
iii. May require two injections (~25%)
1. Generally separated by 2-6 weeks

iv. Indications
1. Failure of conservative treatment
2. Located in medial aspect of lid (won't be able to do incision & curettage)
3. Patient choice

v. Contraindications
1. Allergy/sensitivity to steroid
2. Darkly pigmented skin?

vi. Risks and Complications
1. Depigmentation
2. Infection
3. Bleeding
4. Bruising
5. Allergic reaction to medicine
6. No resolution of lesion (2 injections?)
7. Recurrence
8. Alters histology
9. Local fat atrophy
10. Vision loss

c. Incision & Curettage
i. Surgically incise and drain chalazion
ii. Often attempted after conservative measures
iii. Effective when medical treatment/steroid injection are not
iv. Indications:
1. Particularly large (>6mm) or chronic (>8months)
2. Failure of injection to resolve lesion

v. Contraindications

1. Allergy/Sensitivity to anesthetic
2. Unable to hold still
3. Medial aspect, near punctum

vi. Risks and Complications

1. Incomplete removal
2. Infection
3. Allergy to anesthetic
4. Recurrence
5. Scarring
6. Lid notching
7. Permanent gland damage

d. Important to educate the patient on every option

43. What is the most common complication of post ECCE?
    a. Posterior Capsular Opacification (PCO)
44. Is silicone or acrylic more commonly associated with PCO?
    a. Silicone
45. What does Nd:YAG laser stand for?
    a. Neodymium: Yttrium aluminum garnet laser
46. What type of tissue interactions does a YAG laser produce?
    a. Photodisruptive - High light energy levels cause the tissue to be reduced to plasma, disintegrating the tissue
47. Is a YAG laser pigment dependent or pigment independent?
    a. Pigment independent
48. What is the global period for YAG Capsulotomy?
    a. 90 day global
49. Why is laser trabeculoplasty used in glaucoma treatment:
    a. Glaucoma is progressing in a patient on max medications
    b. Compliance issues
    c. Cost issues
    d. Convenience / quality of life issues
    e. Systemic side effects issues of drops
    f. Doctor preference
50. What is the percentage of IOP reduction typically achieved with laser trabeculoplasty?
    a. ALT: 20-25% reduction
    b. SLT: 28-35% reduction as primary therapy
    c. SLT: 21-25% reduction as secondary therapy