PHARMACOLOGY – DRUGS AND EFFECTS

Andrea Twarowski – Dentalelle Tutoring
1. What type of medication is needed to treat Candida?
   (a) Anti-anginal
   (b) Anti-fungal
   (c) Anti-neoplastic
   (d) Anti-inflammatory

2. Is nystatin available as a suspension (swish and swallow)?
   (a) True
   (b) False

3. What does it mean when a drug causes malformations in a fetus?
   (a) Toxic
   (b) Tetratogenic
   (c) Fatal
   (d) Idiosyncratic reaction

4. When talking about drug action - what is efficacy?
   (a) Amount of drug required to produce the desired therapeutic effect
   (b) A drug's effect on the biologic system
   (c) The dose is plotted against the curve
   (d) Maximum response to a drug regardless of dose

5. When talking about drug action - what is potency?
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6. What is a side effect interchangeable with?
   (a) Adverse reaction
   (b) Actions of drugs
   (c) Toxic reaction
   (d) Drug allergy

7. What is a drug allergy?
   (a) Exaggerated drug reaction
   (b) Rash
   (c) Positive reaction
   (d) Side effect of some

8. What could cause a local effect or irritation?
   (a) General anesthetic
   (b) Topical anesthetic
   (c) Radiographs
   (d) Checkup X-rays

9. Which of the following distributions can cross membranes?
   (a) Bound drug
   (b) Free drug
   (c) Penicillin
   (d) Ibuprofen

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10. What is the primary site for metabolism?
   (a) Liver
   (b) Gall bladder
   (c) Intestines (large)
   (d) Intestines (small)

11. What is half-life?
   (a) the amount of time for drug concentration to decrease by one half
   (b) the amount of time for drug side effect to decrease by one half
   (c) the drug is quickly removed from the body
   (d) the drug is metabolized by the liver

12. What is true for intravenous drug administration?
   (a) preferred for drugs with short half lives
   (b) preferred for drugs with long half lives
   (c) most often used in dentistry
   (d) injection of the drug beneath the skin into subcutaneous tissues

13. What is “fight or flight?”
   (a) parasympathetic autonomic nervous system
   (b) acetylcholine is the released neurotransmitter
   (c) sympathetic autonomic nervous system
   (d) when body is at rest

14. Discuss the differences between the sympathetic and parasympathetic nervous system:

15. How are neurotransmitters terminated?
   (a) Action potential
   (b) Enzymatic breakdown
   (c) Epinephrine
   (d) Acetylcholine

16. What is Digoxin used for?
   (a) Anti-anxiety meds
   (b) Anti-neoplastic meds
   (c) For bipolar
   (d) Cardiovascular meds

17. If your client has high blood pressure, what types of foods or drinks should he/she avoid?
   (a) High sugar intake
   (b) High salt intake
   (c) High dairy intake
   (d) High candy intake
18. What is the method of action of bronchodilators?
(a) relax the hard muscle
(b) relax the smooth muscle
(c) increases the heart rate
(d) calms the patient down

19. What is used for GERD?
(a) Anti-hypertensives
(b) Inflammatory bowel disease agents
(c) Vitamins - specifically B vitamins
(d) Antacids

20. What is the typical dose of levothyroxine?
(a) 0-0.05mg
(b) 1-2mg
(c) 0.05-0.2mg
(d) 2-2.5mg

21. When we talk about drug binding, what are Van Der Waals Forces?
(a) weaker than ionic bonds
(b) strong bond
(c) two atoms placed in close proximity - weak
(d) electrostatic attraction

22. Explain what superinfection is and means.

23. Discuss the stages and planes of anesthesia (hint – using general anesthesia)

24. Explain what nitrous oxide is and why it’s used. What type of gas is it? When is it used?

25. Discuss the types of generalized seizures.
Case Studies

Case Study A

Your friends’ daughter is age 6 and can’t stop vomiting. She has been in the hospital for the past three days. Your friend Mary has been texting you questions almost every hour - she knows you are a dental hygienist and can answer most things.

1. What route of administration of a drug is best in this case and why?
   (a) Rectal
   (b) Sublingual
   (c) Topical
   (d) Transdermal

2. What should you remind Mary about her daughters oral hygiene?
   (a) To brush right after she vomits
   (b) To eat right after she vomits
   (c) To wait 30-60 minutes before brushing after she vomits
   (d) To wait until vomiting has stopped before brushing

3. What is a method to help neutralize the acids from vomiting in the mouth?
   (a) Rinse with orange juice
   (b) No eating or drinking
   (c) Brush with a sensodyne toothpaste
   (d) Rinse with water

4. When does demineralization start to occur?
   (a) pH of 5
   (b) pH of 6
   (c) pH of 5.5
   (d) pH of 6.6

Case Study B

Bill is a long time patient of yours. He’s had chronic back pain for as long as you can remember. His diet isn’t very good - he says he’s hardly hungry or thirsty and maybe eats one meal a deal if that. He refuses to take any new medication prescribed by his doctor for his back pain because he feels “It doesn’t work anyway.” He’s decided to stop taking all this medications. His oral hygiene has been improving but lately you notice less saliva and he’s been complaining of dry mouth.

1. Bill’s feelings of “it doesn’t work anyway” when it comes to his medications are an example of what?
   (a) Placebo effect
   (b) Drug interaction
   (c) Noncompliance
   (d) Illegal

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2. What are some possible causes of Bill's dry mouth?
   (a) Not enough water
   (b) Too many medications
   (c) His chronic back pain
   (d) He eats too much

3. For his chronic back pain, what types of medications might the doctor have prescribed?
   (a) Corticosteroids
   (b) Tylenol
   (c) Lithium
   (d) Antitussives

Case Study C

Joanne was diagnosed with diabetes when she was a child and she still finds a hard time keeping it within healthy range. She is now 25. She sees you every 9 months for her cleanings and checkups. She takes insulin but no other medications. She breathes through her mouth and her only compliant today is that she notices her gums bleed a lot. She wants her teeth whitened before she graduates in the summer.

1. What is polyuria and why might this affect Joanne?
   (a) Increased insulin
   (b) Increased chance of gum disease
   (c) Increased diabetes
   (d) Increased urine

2. What type of diabetes does Joanne have?
   (a) Type I
   (b) Type II
   (c) Juvenile diabetes
   (d) Controlled

3. When does Type I diabetes occur?
   (a) Any age
   (b) Childhood
   (c) Teens
   (d) Adulthood

4. What should Joanne be aware of and what should you ask?
   (a) How much do you weigh since taking insulin?
   (b) What month and year were you diagnosed with diabetes?
   (c) What are the results of your blood glucose testing?
   (d) What is your latest pulse reading?
5. Towards the end of the appointment you notice she is acting strange and her skin is flushed. What are you assessing?
(a) Hypoglycemia
(b) Insulin shock
(c) Ketoacidosis
(d) Stroke

6. Why might Joanne’s gingiva be bleeding so much?
(a) she is a mouth breather
(b) she has diabetes
(c) she comes in every 9 months
(d) she takes insulin
Answers

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14. Discuss the differences between the **sympathetic** and **parasympathetic** nervous system:

<table>
<thead>
<tr>
<th></th>
<th>Sympathetic</th>
<th>Parasympathetic</th>
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<tr>
<td>2.</td>
<td>Generalized and widespread</td>
<td>Generalized and discrete</td>
</tr>
<tr>
<td>3.</td>
<td>Norepinephrine and epinephrine</td>
<td>Acetylcholine</td>
</tr>
<tr>
<td></td>
<td>Dominant during stress</td>
<td>Dominant during rest</td>
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(Also called Lanoxin - brand name)

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(c) High dairy intake
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22. Explain what superinfection is and means.
Superinfection and suprainfection – infection caused by overgrowth of microbes different from the causative microorganisms. A new infection occurring in a patient having a preexisting infection; for example, bacterial infection may occur in patients with viral respiratory disease, or a chronic hepatitis B carrier may become infected with hepatitis D virus. Superinfection can complicate the course of antimicrobial therapy when the organisms causing the new infection are resistant to the drugs being used to treat the first infection.
23. Discuss the stages and planes of anesthesia (hint – using general anesthesia) 
   Stage I – analgesia. Stage II – delirium or excitement; move through smoothly and quickly. Stage III – surgical anesthesia; four planes, most treatment in this phase. Stage IV – respiratory or medullary paralysis; reverse stage immediately or death.

24. Explain what nitrous oxide is and why it’s used. What type of gas is it? When is it used? 
   Colorless gas with little or no odor. Least soluble in blood and used for conscious anesthesia during dental treatment. It helps the patient feel relaxed. 100% oxygen given after the procedure before removing the mask.

25. Discuss the types of generalized seizures. 
   (a) Absence (petit mal) – minor, does not lose consciousness 
   (b) Tonic-clonic (grand mal) – jerking movements, an aura, status epilepticus could happen (continuous seizures can last 30 minutes and emergency treatment is needed such as diazepam. 
   (c) Partial seizures – simple or complex. Seizures last minutes (not seconds as in the absence type) aura can occur.
Case Study A

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1. What route of administration of a drug is best in this case and why?
   (a) Rectal
   (b) Sublingual
   (c) Topical
   (d) Transdermal
   —The why is because rectal calls for rapid administration of the drug and usually or paediatric patients. The patient is vomiting so taking any oral medications would be difficult.

2. What should you remind Mary about her daughters oral hygiene?
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1. What is polyuria and why might this affect Joanne?
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   (b) Increased chance of gum disease  
   (c) Increased diabetes  
   (d) Increased urine  
   —Often in patients with diabetes

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   (b) Insulin shock (sweaty skin)  
   (c) Ketoacidosis -  
   (d) Stroke (doesn’t apply)
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