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Unit Examination II

11/1/02

**MEDICAL PHARMACOLOGY  
UNIT EXAMINATION II  
NOVEMBER 1, 2002**

Each of the questions or incomplete statements below is followed by suggested answers or completions. Select the **ONE** that is best in each case.

1. Patients with renal disease may experience increased clotting of the dialyzer and worsening of or new onset of hypertension and seizures. The drug that may cause these effects is

- ~~A.~~ ferrous sulfate (Feosol®).  
~~B.~~ vitamin B<sub>12</sub> (Rubramin®).  
 C. erythropoietin (Epogen®).  
D. folic acid (Folvite®).  
E. deferoxamine (Desferal®).

2. A hypochromic microcytic anemia should be treated with

- ~~A.~~ vitamin B<sub>12</sub> (Rubramin®).  
~~B.~~ folic acid (Folvite®).  
~~C.~~ erythropoietin (Epogen®).  
 D. ferrous sulfate (Feosol®).  
~~E.~~ interleukin-3.

3. Patients receiving anticonvulsant drugs, such as phenytoin, primidone, and phenobarbital may develop a megaloblastic anemia due to a deficiency in

- A. folate.  
 B. vitamin B<sub>12</sub>.  
C. iron.  
D. erythropoietin.  
E. myeloid growth factors.

4. If an individual has a gastrectomy and therefore produces no intrinsic factor, he/she will be deficient in

- A. iron.  
B. folate.  
 C. vitamin B<sub>12</sub>.  
D. erythropoietin.  
E. myeloid growth factors.

5. Large, oval red cells is characteristic of megaloblastic anemia which is a deficiency in

- A. iron plus folate.
- B. iron plus vitamin B<sub>12</sub>.
- C. only folate.
- D. only vitamin B<sub>12</sub>.
- E. either or both vitamin B<sub>12</sub> and folate.

6. Nerve damage (neurological symptoms) may occur in an anemic patient

- A. if there is a dietary deficiency in iron.
- B. if there is a dietary deficiency in vitamin B<sub>12</sub>.
- C. if there is a dietary deficiency in folate.
- D. if the patient is taking deferoxamine (Desferal®).

7. A house painter enters the emergency room under his own power complaining of headache, vomiting, severe upper abdominal pain, and blurred vision that worsens to dim vision with time. His gait is steady and lab results indicate severe metabolic acidosis. It is most likely that

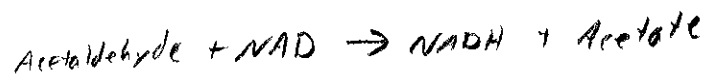
- A. the person is intoxicated from drinking ethanol.
- B. the person has been poisoned with isopropanol.
- C. the person has been poisoned with methanol.
- D. the person has been poisoned with ethylene glycol.
- E. the person has been poisoned with propylene glycol.

8. Select the biochemical change measurable in the liver and a corresponding biochemical change measurable in blood or serum that results from the hepatic metabolism of ethanol.

- ~~A.~~ an increase in the NAD/NADH ratio that results in hyperlacticacidemia.
- B. an increase in the NADH/NAD ratio that results in hyperlipidemia.
- ~~C.~~ an increase in the NAD/NADH ratio that results in ketosis.
- ~~D.~~ an increase in the NADP/NADPH ratio that results in hypoglycemia.
- E. an increase in the NADH/NAD ratio that results in hypouricemia.

9. One of the conditions listed below is a medical contraindication for alcohol consumption and warrants termination of its use? That condition is

- A. hyperlipidemia.
- B. depression.
- C. hypotension.
- D. generalized anxiety.
- E. gastrointestinal ulcers.



10. Treatment with the drug disulfiram and genetic expression of the dominant ALDH2<sup>2</sup> allele of aldehyde dehydrogenase are similar in effect because

- Choose*
- A. both accelerate the metabolism of ethanol leading to less intoxication.
  - B. both result in the accumulation of acetate in the blood.
  - C. both lead to flushing and nausea following ethanol ingestion.
  - D. both are associated with alcoholic cirrhosis in Japanese populations.
  - E. both are commonly found in Norwegian populations.

11. Sulfonylurea drugs reduce blood glucose levels mainly by:

- A. sensitizing peripheral tissues to glucose.
- B. releasing pancreatic insulin.
- C. inducing glycosuria.
- D. inhibiting glucagon release.
- E. releasing pancreatic glucagons.

12. Antidiabetic drugs work by several different mechanisms of action. Name the antidiabetic agent that acts by binding to a peroxisome proliferator-activated receptor.

- A. chlorpropamide
- B. tolbutamide
- C. glipizide
- D. rosiglitazone
- E. metformin

13. Many drugs are known to induce hypoglycemia through various mechanisms. Name the drug listed below that does NOT cause hypoglycemia.

- A. ethanol
- B. glipizide
- C. tolbutamide
- D. insulin
- E. metformin

14. The prandial glucose regulator drug called nateglinide has a mechanism of action most closely related to which drug listed below?

- A. Metformin
- B. Insulin
- C. Diazoxide
- D. Miglitinide
- E. Glipizide

meglitinides  
repaglinide, nateglinide, miglitinide

15. Finasteride is a drug with antiandrogen properties. Name its mechanism of action:

- A. It inhibits the 5- $\alpha$  reductase enzyme.
- B. It stimulates the 3 $\beta$ -hydroxysteroid dehydrogenase enzyme.
- C. It binds to androgen receptors.
- D. It inhibits Leydig cell function.
- E. It blocks the aromatase enzyme.

16. Name the condition below for which leuprolide is an established treatment.

*used w/ gonadotropins to inhibit spermatogenesis?*

- A. Hyperprolactinemia
- B. Adult prostrate cancer
- C. Cushing's syndrome associated with adrenal carcinoma
- D. Female contraception
- E. Dwarfism - *gonadotropin?*

17. Human chorionic gonadotropin (hCG) is used diagnostically in males to assess gonadal function. This test is based on what action of hCG?

- A. Its ability to mimic the actions of gonadotropin releasing hormone (GnRH).
- B. Its ability to mimics the actions of LH.
- C. Its ability to inhibit testosterone secretion.
- D. Its ability to stimulate luteinizing hormone (LH) secretion.
- E. Its ability to inhibits LH secretion.

18. Name the antiandrogen drug whose mechanism of action is to antagonize binding to androgen receptors.

- A. flutamide - *severe hirsutism*
- B. finasteride - *5 $\alpha$ H $\alpha$  inhibitor*
- C. nafarelin - *steroid*
- D. tamoxifen citrate - *breast cancer, estrogen*
- E. raloxifene - *blocker of estrogen receptors*

19. Which of the following is a glucocorticoid that may have caused glaucoma in a patient treated for a chronic eye infection?

- A. dexamethasone
- B. beclomethasone
- C. triamcinolone
- D. medrysone
- E. fludrocortisone

20. Complete the following true sentence. The drug preparation known as urofollitropin is

- A. used with menotropins to inhibit spermatogenesis. -leuprolide
- B. an FSH preparation devoid of LH activity.
- C. a treatment for hereditary angioneurotic edema.
- D. used in oral contraceptives.
- E. an orphan drug for severe hirsutism. ~

21. The *Plan B* kit for emergency contraception is composed of which drug?

- A. ethinyl estradiol
- B. levonorgestrel
- C. medroxyprogesterone acetate -17<sup>s</sup>
- D. norethindrone
- E. desogestrel

22. Which condition listed below is an absolute contraindication for the use of combination contraceptive preparations?

- A. dysmenorrhea
- B. hypogonadism
- C. menopause
- D. congenital hyperlipidemia
- E. nausea

23. A progestin commonly found in oral contraceptives (birth control pills) is

- A. diethylstilbestrol.
- B. norgestrel.
- C. mestranol.
- D. medroxyprogesterone acetate.
- E. mifepristone.

24. Among the commonly used estrogens listed below, the most potent one is:

- A. estrone.
- B. estriol.
- C. estropipate.
- D. enclomiphene.
- E. ethinyl estradiol.

25. The drug tomosifen citrate

- A. is a competitive antagonist at progesterone receptors in breast tissue.
- B. is a competitive antagonist at androgen receptors in the prostate.
- C. is a competitive antagonist at estrogen receptors in breast tissue.
- D. is used to stimulate follicular growth for induction of ovulation.
- E. is used to block GnRH secretion and inhibit ovulation.

26. The  $17\alpha$ -alkyl testosterone derivative that also acts as a pure antiestrogen is called

- A. methyltestosterone. ✓
- B. testosterone propionate.
- C. fluoxymesterone. ✓
- D. danazol. ✓
- E. norethindrone.

27. Which drug listed below can be used to treat hyperprolactinemia?

- A. metyrapone
- B. leuprolide
- C. somatrem
- D. octreotide
- E. cabergoline

28. The drug octreotide has which of the following properties?

- A. It is a dopamine agonist.
- B. It is a somatostatin antagonist.
- C. It is a gonadotropin releasing hormone agonist. - 10<sup>5</sup> x tropin
- D. It is a somatostatin agonist.
- E. It is a dopamine antagonist.

29. Somatropin is the name given for the drug that

- Somatropin (hGH)*
- A. is an anti-glucocorticoid.
  - B. is human growth hormone.
  - C. is used to treat hypoprolactinemia.
  - D. is a growth hormone-releasing hormone analog.
  - E. stimulates  $3\beta$ -hydroxysteroid dehydrogenase activity.

30. Non-idiopathic Cushing's syndrome can be diagnosed using which of the following tests?

- A. the insulin tolerance test
- B. the overnight dexamethasone suppression test
- C. the 24 h cortisol output test
- D. the glucose tolerance test
- E. the metyrapone test

31. Which drug listed below is an orally active mineralocorticoid sometimes used in congenital adrenal hyperplasia?

- A. prednisone
- B. fludrocortisone
- C. fluoxymesterone
- D. mifepristone
- E. metyrapone

32. A high protein diet is important for patients on prolonged pharmacologic doses of glucocorticoids because:

- A. glucocorticoid treatment can reduce growth.
- B. glucocorticoid treatment decrease gluconeogenesis.
- C. glucocorticoids can cause glycosuria.
- D. glucocorticoids inhibit calcium absorption from the GI tract.
- E. glucocorticoids increase muscle catabolism.

33. Glucocorticoids are used extensively for the treatment of non-endocrine diseases primarily because of their

- A. effects on glucose metabolism.
- B. effects on calcium homeostatis.
- C. feedback suppression of ACTH.
- D. immunosuppressive and anti-inflammatory actions.
- E. ability to increase intraocular pressure.

34. A patient being treated for rheumatoid arthritis presents herself at the clinic with thin arms and legs, and a round rosy face complaining that she bruises too easily, cuts don't heal for a long time, and that her face has become fat. Most likely she is exhibiting signs of:

- A. Grave's disease.
- B. Addison's disease.
- C. Cushing's syndrome.
- D. naproxen toxicity.
- E. congestive heart failure.

35. A patient is receiving the drug sirolimus along with a glucocorticoid and additional drugs. The most likely reason this patient is receiving the sirolimus is because

- A. the patient is being treated for eczema.
- B. it is an attempt to protect the patient against organ transplant rejection.
- C. the patient has Addison's disease.
- D. it is to protect the patient against relapsing-remitting multiple sclerosis.
- E. the patient has received antithymocyte antibodies.

36. Name the glucocorticoid that is commonly administered i.v. during acute organ rejection.

- A. dexamethasone
- B. fludrocortisone
- C. medrysone
- D. prednisone
- E. methylprednisolone

37. This cytokine can be used to stimulate the immune system of patients with metastatic renal cancer. Toxicities associated with its use include GI bleeding, increased incidence of infections, and capillary leak syndrome. The cytokine is named

- A. interleukin-2.
- B. interferon- $\beta$ -1b.
- C. interferon- $\alpha$ -2a.
- D. granulocyte colony-stimulating factor.
- E. interleukin-1 $\beta$ .

38. The mechanism of action of the immunosuppressant drug cyclosporine is

- A. to bind to an intracellular protein and inhibit calcineurin phosphatase.
- B. to inhibit inosine monophosphate dehydrogenase.
- C. to alkylate DNA, particularly in proliferating cells.
- D. to potentiate the stimulation of lymphocytes, granulocytes and macrophages by antigens, mitogens, lymphokines and chemotactic factors.
- E. to inhibit viral replication and modulate immune responses.

39. During thyrotoxic crisis (i.e., thyroid storm) it is important to delay potassium iodide treatment until after the first dose of propylthiouracil is given because

- A. iodide inhibits the uptake of propylthiouracil by the thyroid.
- B. the high doses of iodide used during thyroid storm management will delay the onset of action of propylthiouracil.
- C. iodide causes an initial release of thyroxine that can be countered by propylthiouracil.
- D. propylthiouracil requires iodide to act within the thyroid.
- E. it is important to inhibit the peripheral conversion of T4 to T3 by iodothyronine 5'-deiodinase-1 prior to iodide exposure.

40. Which of the following best describes the primary site of action for the drug methimazole?

- A. the thyroid peroxidase enzyme
- B. the TSH-receptor
- C. the T3 nuclear receptor
- D. the release of thyroid hormones
- E. the transport of thyroid hormones

41. Name the condition listed below that is NOT a cause of hypothyroidism.

- A. drug-induced block of thyroid hormone synthesis
- B. Hashimoto's thyroiditis
- C. TSH deficiency due to primary hypopituitarism
- D. Graves' disease
- E. irradiation-induced destruction of the thyroid