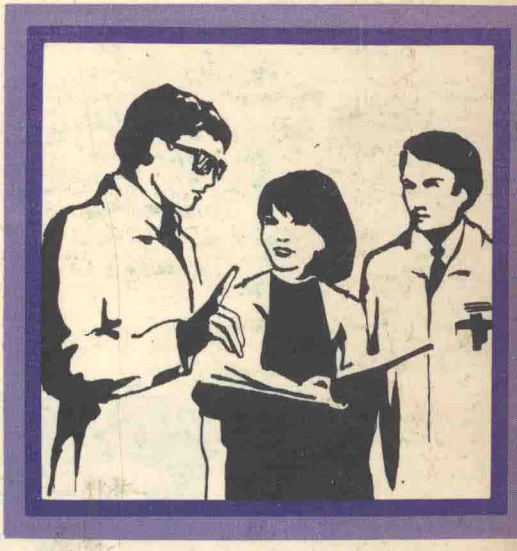
MEDICAL EXAMINATION REVIEW

Pharmacology

Fifth Edition

745 Multiple Choice Questions with Referenced Explanatory Answers



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MEDICAL EXAMINATION PUBLISHING CO., INC.

Main entry under title:

Medical examination review.

Vol. published in New Hyde Park, N.Y.
Includes various editions of some volumes.
Includes bibliographical references.
1. Medicine—Examinations, questions, etc.
RC5. M4 610'.76 61-66847
ISBN 0-87488-205-2 AACRI

Printed in the United States of America

notice

The authors and the publisher of this book have made every effort to ensure that all therapeutic modalities that are recommended are in accordance with accepted standards at the time of publication.

The drugs specified within this book may not have specific approval from the Food and Drug Administration in regard to the indications and dosages that may be recommended by the authors. The manufacturer's package insert is the best source of current prescribing information.

Pharmacology

Preface

This fifth edition of *Pharmacology* has been substantially revised and updated to keep in step with current trends in medical education and the continuing expansion of scientific knowledge. It is designed to help you prepare for course examinations, National Boards Part I, the Federation Licensing Examination (FLEX), and examinations for foreign medical graduates.

The range of subjects included in this volume is based on the content outline of the National Board of Medical Examiners, which develops the question pool for the tests mentioned above, and reflects the scope and depth of what is taught in medical schools today. The questions themselves are organized in broad categories, to give you a representative sampling of the material covered in course work, while helping you define those general areas to which you need to devote attention. For your convenience in selective study, the answers (with commentary and references) follow each section of questions.

Each question has been scrutinized by specialists to verify that it is relevant and current. The authors' care in item construction give you questions that will provide good practice in familiarizing yourself with the format of objective-type tests. Questions of each type—one best response, matching, multiple true-false, and so on—are grouped together. They are modelled as closely as possible after those used by the Board.

Using this book, you may identify areas of strength and weakness in your own command of the subject. Specific references to widely-used textbooks allow you to return to the authoritative source for further study. This volume supplements the lettered answers with brief explanations intended to prompt you to think about the choices—correct and incorrect—to put the answers in broadened perspective, and to add to your fund of knowledge. The questions and answers, taken together, emphasize problem solving and application of underlying principles as well as retention of factual knowledge.

disclaimer

The authors have made every effort to thoroughly verify the answers to the questions which appear on the following pages. However, as in any text, some inaccuracies and ambiguities may occur; therefore, if in doubt, please consult your references.

The Publisher

Contents

1: Drug Interactions

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

1. A severe hypertensive crisis is most likely to occur from the combination of tranylcypromine with
   A. morphine
   B. atropine
   C. levodopa
   D. carbidopa
   E. diazepam

2. Clofibrate
   A. increases the likelihood of the formation of gallstones
   B. decreases and delays the absorption of chlorothiazide
   C. delays the absorption of tetracycline
   D. decreases the absorption of digitoxin
   E. when given to patients receiving dicoumarol, the dose of dicoumarol should be increased by 30 to 50%

3. Two drugs competing for plasma proteins thereby elevating the free (active) drug levels and causing enhanced, sometimes severe, effects are
   A. morphine and chlorpromazine
   B. aspirin and tolbutamide
   C. digoxin and hydrochlorothiazide
   D. diphenhydramine and reserpine
   E. probenecid and penicillin

4. Which one of the following drugs increases the metabolism of bishydroxycoumarin by induction of hepatic microsomal enzymes?
   A. Phenobarbital
   B. Methyldopa
   C. Phenylbutazone
   D. Thyroxine
   E. Guanethidine

5. All of the following adverse effects associated with the cited drug combinations have been observed EXCEPT
   A. respiratory paralysis–neomycin + ether
   B. cardiac arrhythmias–digitalis + reserpine
   C. hypertensive crisis–minoxidil + hydrochlorothiazide
   D. hypoglycemic reaction–tolbutamide + sulfisoxazole
   E. hemorrhagic episodes–warfarin + phenylbutazone

DIRECTIONS: Each group of questions below consists of five lettered headings followed by a list of numbered words, phrases, or statements. For **each** numbered word, phrase, or statement, select the **one** lettered heading that is most closely associated with it. Each lettered heading may be selected once, more than once, or not at all.

A. Sodium chloride
B. Methenamine
C. Chlorpromazine
D. Clofibrate
E. Tetracycline

6. Reduced intake of one of the drugs listed during lithium therapy may precipitate toxicity

7. Can block or reverse the pressor effect of epinephrine

8. Milk ingested within less than two hours of the time this drug is taken interferes with its absorption

9. Increases the chance of sulfonamide-induced crystalluria

   A. Sodium bicarbonate
   B. Phenobarbital
   C. 6-Mercaptopurine
   D. Methotrexate
   E. Metronidazole

10. Increases the clinical effectiveness of the cinchona alkaloids and the 4-aminoquinoline antimalarial compounds

11. After drinking two alcoholic drinks (Manhattans), the individual has a severe pulsating headache and is thirsty and nauseated; he vomits, pulse is rapid and weak and syncope occurs. He is having an antabuselike reaction. Which of the above drugs has he been taking?

12. Reduces hormonal effects of estrogens, androgens, and cortisol

   A. Glucagon
   B. Calcium
   C. Furosemide
   D. Pyridoxine
   E. Imipramine

13. Potentiates the toxic effects of digitalis

14. Reduces levodopa-induced improvement in parkinsonism

15. Prevents and reverses the hypertensive action of guanethidine

16. Has an additive hyperglycemic effect when given to patient on cortisol therapy

17. Potentiates the hypokalemia associated with cortisol therapy

    A. Cholestyramine
    B. Hydrochlorothiazide
    C. Propranolol
    D. Quinidine
    E. Large doses of acetylsalicylic acid

18. Can cause hyperuricemia and precipitate an acute attack of gout

19. Can antagonize the effects of cholinergic drugs on the myocardium

20. Increases the effects of cardiac glycosides on cardiac excitability

21. Can potentiate digitalis-induced bradycardia

22. Reduces the clinical effectiveness of oral digoxin by decreasing its absorption

    A. Phenytoin (diphenylhydantoin)
    B. Vitamin C (ascorbic acid)
    C. Indomethacin
    D. Propoxyphene
    E. Phenobarbital

23. After repeated administrations along with dicumarol this drug, if discontinued, can bring forth severe hemorrhages in the patient unless dose correction is made

24. Its use with anticoagulants could be dangerous, though it does not interfere with or prolong the activity of anticoagulants on bleeding time of blood

25. Increases blood levels of salicylates by increasing renal tubular reabsorption

A. Glucagon
B. Probenecid
C. Norepinephrine
D. Gentamicin
E. Procaine

26. Increases the neuromuscular blockade produced by neuromuscular-blocking agents such as succinylcholine and d-tubocurarine

27. Will increase the clinical effectiveness of cephalosporins

28. When metabolically converted, it reduces clinical effectiveness of sulfonamide therapy

29. Patient receiving propranolol develops symptoms of heart failure including weakness, nausea, syncope, and a slow weak pulse. A rather quick recovery occurs with the administration of one of these drugs

A. Patient taking propranolol
B. Patient taking aspirin
C. Patient digitalized with digitoxin
D. Patient taking chlorpheniramine
E. Patient given meperidine

30. Heparin should never be given to this patient

31. Danger of serious respiratory depression when hydroxyzine is administered to this patient

32. Reserpine given parenterally may cause arrhythmias, yet this drug administered to a reserpinized patient does not cause arrhythmias

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DIRECTIONS: Each set of lettered headings below is followed by a list of numbered words or phrases. For each numbered word or phrase select

A if the item is associated with A *only*
B if the item is associated with B *only*
C if the item is associated with *both* A and B
D if the item is associated with *neither* A nor B

A. The therapeutic effects are reduced
B. Increased therapeutic and/or toxic effects unless dose is reduced
C. Both
D. Neither

33. Five days after discontinuing tranylcypromine, the individual started taking imipramine

34. Individual is taking tranylcypromine and ate a cheeseburger and drank some beer

35. Phenytoin effects when phenobarbital is given to patient taking phenytoin

36. Indomethacin is prescribed for a patient who is receiving corticosteroid injections

DIRECTIONS: For each of the questions or incomplete statements below, **one or more** of the answers or completions given is correct. Select

A if only *1, 2, and 3* are correct
B if only *1 and 3* are correct
C if only *2 and 4* are correct
D if only *4* is correct
E if *all* are correct

37. Mechanisms which are responsible for drug interactions include
    1. enzyme induction
    2. increase of chemical transmitter at receptors
    3. depletion or reduction of transmitter at receptors
    4. inhibition of protein synthesis

38. The sites for plasma protein binding include
    1. albumin
    2. transferrin
    3. globulin
    4. α- and β-lipoproteins

39. Drug half-life can be prolonged by
    1. decreased activity of the enzyme responsible for its metabolism
    2. increased amount distributed and deposited in adipose tissue
    3. reduced liver and kidney function
    4. decreased amount bound to plasma proteins

40. Epinephrine and theophylline contribute to increased cyclic AMP by the influence of
    1. epinephrine on phosphodiesterase
    2. epinephrine on adenyl cyclase
    3. theophylline on adenyl cyclase
    4. theophylline on phosphodiesterase

1: Drug Interactions Answers and Comments

1. C. Alpha adrenergic agonists including dopamine (the product of levodopa) can cause serious hypertension in patients taking MAO inhibitors since MAO is involved in the biotransformation of adrenergic agonists. They also potentiate and prolong the actions of CNS depressants, anticholinergic drugs, and certain hypotensive drugs. (**REF.** 2, pp. 525, 547)

2. A. Clofibrate increases hepatic excretion of cholesterol and therefore may elevate cholesterol concentration in bile and increases two to threefold the possibility of gallstone formation. (**REF.** 2, pp. 302, 303)

3. B. Of those listed, only aspirin and tolbutamide produce enhanced effects by competition for plasma protein binding, which results in higher free (active) drug levels and hypoglycemia. (**REF.** 3, p. 741)

4. A. Of the drugs listed, only phenobarbital causes induction of the hepatic enzyme which is involved in the metabolism of coumarins thereby reducing the effects of the anticoagulant unless the dose is increased. Other drugs with similar action are meprobamate, chloral hydrate, glutethimide, and griseofulvin. (**REF.** 1, pp. 1356-1357; 3, p. 741)

5. C. Minoxidil is useful in the treatment of hypertensive crises since it causes dilation of arterioles by its direct action. It is necessary to give a diuretic with it since minoxidil causes sodium retention. The other listed adverse effects can occur with the drugs as stated. (**REF.** 3, pp. 221, 740)

6. A. Reduced sodium chloride intake slows renal lithium excretion, thereby increasing lithium toxicity. (**REF.** 1, pp. 433-434)