Pharmacology

Antimicrobial

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1. **When was the "Golden age of antimicrobials" marked in the history of anti-infective substances?**
    - **A) 1900's**
    - **B) 1936**
    - **C) 1940's**
    - **D) 1950's**

2. **When were sulfonamides discovered, marking a significant milestone in the development of antimicrobial agents?**
    - **A) 1900's**
    - **B) 1936**
    - **C) 1946**
    - **D) 1950's**
    - **E) 1846**

3. **What accurately describes the relationship between Minimal Inhibitory Concentration (MIC) and Minimal Bactericidal Concentration (MBC) in the context of antibiotic effectiveness?**

    - **A) MIC is always higher than MBC because it only inhibits, not kills, bacteria.**
    - **B) MBC is typically a lower value than MIC as it requires less antibiotic to kill bacteria than to inhibit their growth.**
    - **C) The MBC of a truly bactericidal agent is equal to or just slightly above its MIC.**
    - **D) MBC is unrelated to MIC as it pertains to a different spectrum of antimicrobial activity**

4. **Which class of antibiotics is known for containing a beta-lactam ring in their structure?**
    - **a) Aminoglycosides**
    - **b) Macrolides**
    - **c) Cephalosporins**
    - **d) Tetracyclines**

5. **Penicillins act by:**
    a) **Inhibiting protein synthesis**
    b) **Disrupting DNA replication**
    c) **Inhibiting cell wall synthesis**
    d) **Altering cell membrane permeability**
6. **Which of the following antibiotics should be used with caution in individuals with G6PD deficiency due to the risk of inducing hemolysis?** مهم
    A) **Penicillin**
    B) **Sulfonamides**
    C) **Ciprofloxacin**
    D) **Tetracycline**
7. **In patients with a history of what condition are penicillins absolutely contraindicated?**
    A) **Diabetes**
    B) **Having much IgE to it**
    C) **Hypertension**
    D) **Renal failure with having TB**

8. **The primary mechanism of action for aminoglycosides is:**
    a) **Inhibition of cell wall synthesis**
    b) **Disruption of plasma membrane integrity**
    c) **Inhibition of protein synthesis by binding to the 30S ribosomal subunit**
    d) **Inhibition of DNA synthesis**

9. **Vancomycin is particularly effective against:**
    a) **Gram-negative bacteria especially E coli**
    b) **Gram-positive bacteria, especially MRSA**
    c) **Both gram-positive and gram-negative bacteria**
    d) **Fungi**

10. Sodium (Na+) penicillins should be used cautiously in patients with which conditions?

- **A) Asthma and COPD**
- **B) Hypertension or heart failure**
- **C) Liver disease with hepatitis**
- **D) Thyroid dysfunction**

11. β-lactamase inhibitors, such as clavulanic acid, are added to penicillins primarily to:

- **a) Increase drug absorption**
- **b) Enhance the spectrum of penicillin activity against β-lactamase producing bacteria**
- **c) Reduce the spectrum of penicillin**
- **d) Enhance drug distribution**

12. Which generation of cephalosporins includes the antibiotic Cefazolin?

- **A) First Generation**
- **B) Second Generation**
- **C) Third Generation**
- **D) Fourth Generation**

13. Cephamandole is classified under which generation of cephalosporins?

- **A) First Generation**
- **B) Second Generation**
- **C) Third Generation**
- **D) Fourth Generation**

14. Which cephalosporin is excreted by the liver rather than the kidneys? * important*

A) Cefazolin
B) Cephalexin
C) Ceftriaxone
D) Cefadroxil

15. Which drug is combined with cilastatin to inhibit its rapid metabolism by the enzyme dehydropeptidase I in the kidney? important
A) Ceftriaxone
B) Meropenem
C) Imipenem
D) Aztreonam

16. The post-antibiotic effect (PAE) is defined as:
a) The immediate bactericidal action of an antibiotic due to high MIC levels
b) The continued suppression of bacterial growth after antibiotic levels fall below the MIC
c) The increase in bacterial resistance after antibiotic treatment
d) The time taken for an antibiotic to reach peak concentration

17. Which of the following is a consequence of antibiotic therapy altering the normal microbial flora?
a) Enhanced drug absorption
b) Reduced likelihood of superinfection
c) Overgrowth of opportunistic organisms
d) Decreased antibiotic effectiveness

18. Which family of antibiotics is considered more active against Helicobacter pylori? * important *
A) Penicillins
B) Cephalosporins
C) Macrolides
D) Fluoroquinolones

19. The use of cephalosporins is often guided by their generation because:

a) Later generations are less effective
b) Later generations have a broader spectrum of activity
c) Early generations are more toxic
d) Early generations are more effective against gram-negative bacteria

20. Which antibiotic is known for causing "Red Man Syndrome" when administered rapidly? important

a) Penicillin
b) Vancomycin
c) Ciprofloxacin
d) Gentamicin

21. What unique characteristic of Chloramphenicol makes it particularly effective in treating infections of the central nervous system? Important!!

A) It is not metabolized and remains active in the body for extended periods.
B) It has a high affinity for binding to plasma proteins.
C) It is the best antibiotic for crossing the blood-brain barrier (BBB).
D) It is only activated within the acidic environment of the stomach.

22. Macrolide antibiotics primarily act by:

a) Inhibiting DNA synthesis
b) Inhibiting bacterial cell wall synthesis
c) Binding to the 50S subunit of the bacterial ribosome
d) Disrupting bacterial cell membrane integrity

23. The major risk associated with the use of aminoglycosides, like gentamicin, is:

a) Liver toxicity
b) Cardiotoxicity

c) Nephrotoxicity and ototoxicity
d) Gastrointestinal irritation

24. Chloramphenicol is a broad-spectrum antibiotic. Its major side effect is: important
a) Diarrhea
b) Aplastic anemia
c) Rash
d) Neurotoxicity

25. Fluoroquinolones, like ciprofloxacin, are effective because they:
a) Inhibit bacterial protein synthesis
b) Inhibit bacterial DNA synthesis
c) Alter cell membrane permeability
d) Block cell wall synthesis

26. The primary action of sulfonamides in antimicrobial therapy is:
a) Inhibiting bacterial folic acid synthesis
b) Blocking protein synthesis on the 30S ribosomal subunit
c) Disrupting cell wall synthesis
d) Causing direct damage to bacterial DNA

27. Vancomycin's mechanism of action includes:
a) Inhibition of DNA gyrase
b) Inhibition of RNA polymerase
c) Inhibition of cell wall synthesis
d) Disruption of the plasma membrane

28. A major concern with the use of broad-spectrum antibiotics, is:

a) **Reduced effectiveness against Gram-positive bacteria**
b) **The potential for causing superinfections**
c) **Increased risk of nephrotoxicity**
d) **Decreased absorption due to food interactions**

29. Macrolides, such as erythromycin, primarily inhibit bacterial growth by:

a) **Inhibiting DNA synthesis**
b) **Disrupting cell wall synthesis**
c) **Binding to the 50S ribosomal subunit**
d) **Inhibiting folic acid synthesis**

30. Tetracyclines are known to be effective against:

a) **Only Gram-positive bacteria**
b) **Only Gram-negative bacteria**
c) **Both Gram-positive and Gram-negative bacteria**
d) **Neither Gram-positive nor Gram-negative bacteria**

31. Chloramphenicol's mechanism of action involves:

a) **Inhibition of mitochondria**
b) **Inhibition of DNA gyrase**
c) **Inhibition of the 50S ribosomal subunit**
d) **Disruption of cell wall synthesis**

32. The primary mechanism of action for fluoroquinolones is:

a) **Inhibition of cell wall synthesis**

b) **Inhibition of protein synthesis**
c) **Inhibition of DNA synthesis**
d) **Disruption of plasma membrane integrity**

33. Sulfonamides act by:

a) **Inhibiting bacterial protein synthesis**
b) **Disrupting bacterial cell walls**
c) **Inhibiting bacterial DNA synthesis**
d) **Inhibiting bacterial folic acid synthesis**

34. The major adverse effect of clindamycin is:

a) **HIV**
b) **Nephrotoxicity**
c) **Ototoxicity**
d) **Pseudomembranous colitis**

35. Which antibiotic has effectiveness against Pseudomonas aeruginosa?

a) **Erythromycin**
b) **Vancomycin**
c) **Cefepime**
d) **Penicillin G**

36. The drug of choice for treating methicillin-resistant Staphylococcus aureus (MRSA) is:*important*

a) **Amoxicillin**
b) **Vancomycin**
c) **Cephalexin**
d) **Tetracycline**

37. **Which of the following antibiotics is contraindicated in patients with a history of myasthenia gravis due to the risk of exacerbating muscle weakness? * is it hard ;) ? ***
    a) **Macrolides**
    b) **Tetracyclines**
    c) **Sulfonamides**
    d) **Aminoglycosides**

38. **Which of the following is a common adverse effect of erythromycin(Macrolids) ?*important***
    a) **Severe hypotension**
    b) **Gastrointestinal irritation**
    c) **Acute renal failure**
    d) **Hemolytic anemia**

39. **Nitrofurantoin is primarily used in the treatment of:**
    a) **Respiratory tract infections**
    b) **Urinary tract infections**
    c) **Skin infections**
    d) **Gastrointestinal infections**

40. **The combination of trimethoprim and sulfamethoxazole is effective because:**
    a) **It inhibits sequential steps in folic acid synthesis**
    b) **It disrupts cell wall synthesis in bacteria**
    c) **It inhibits DNA gyrase and topoisomerase IV**
    d) **It prevents bacterial protein synthesis**

41. **Which of the following is a characteristic of cephalosporins?**
    a) **Ceftaroline is 2nd generation**

b) **Broad spectrum of activity**
c) **Known for Ineffective against Gram-positive bacteria**
d) **Major use in viral infections**

42. Carbapenems, like imipenem, are primarily used for:

a) **Gram-positive infections**
b) **Gram-negative infections**
c) **Anaerobic infections**
d) **All of the above**

43. Aminoglycosides, such as gentamicin, are known for:

a) **Oral effectiveness**
b) **Low toxicity profile**
c) **Effectiveness with treating TB**
d) **Effectiveness against Gram-positive bacteria**

44. Chloramphenicol is effective against:

a) **Only Gram-positive bacteria**
b) **Only Gram-negative bacteria**
c) **Both Gram-positive and Gram-negative bacteria**
d) **Neither Gram-positive nor Gram-negative bacteria**

45. Tetracyclines are known for their:

a) **Narrow spectrum of activity**
b) **High safety in pregnancy**
c) **Broad spectrum of activity**
d) **Lack of resistance development**

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46. Fosfomycin is primarily indicated for:

a) **Lower Urinary tract infections**
b) **Respiratory tract infections**
c) **Skin infections**
d) **Gastrointestinal infections**

47. The mechanism of action for quinolones, like ciprofloxacin, involves:

a) **Inhibition of cell wall synthesis**
b) **Inhibition of protein synthesis**
c) **Inhibition of DNA synthesis**
d) **Alteration of cell membrane permeability**

48. Trimethoprim acts by:

a) **Inhibiting folic acid synthesis**
b) **Disrupting cell membrane**
c) **Binding to the 50S ribosomal subunit**
d) **Inhibiting DNA gyrase**

49. Major side effects of aminoglycosides include: * important

a) **Hepatotoxicity and neurotoxicity**
b) **Cardiotoxicity and nephrotoxicity**
c) **Gastrointestinal irritation and rash**
d) **Ototoxicity and nephrotoxicity**

50. Macrolides are considered alternatives to penicillins in patients with:

a) **Renal impairment**

b) Hepatic impairment
c) Penicillin allergy
d) Myasthenia gravis

51. Chloramphenicol's major side effect, particularly in neonates, is:
a) Hepatotoxicity
b) Gray baby syndrome
c) Nephrotoxic baby syndrome
d) Ototoxicity

52. The primary concern with the use of broad-spectrum antibiotics like tetracyclines is:
a) Immediate hypersensitivity reactions
b) Development of superinfections
c) High risk of nephrotoxicity
d) Cardiac arrhythmias

53. Which class of antibiotics is known to cause photosensitivity as a side effect?
a) Macrolides
b) Beta-lactams
c) Tetracyclines
d) Aminoglycosides

54. risk associated with the use of fluoroquinolones is:*important
a) Cardiac Toxicity
b) Ototoxicity
c) Tendon rupture

d) **Nephrotoxicity**

55. Cephalosporins are classified into different generations based on their:

a) **Mechanism of action**
b) **Spectrum of activity**
c) **Side effect profile**
d) **Rate of excretion**

56. The major adverse effect of clindamycin is:

a) **pseudomonas aeruginosa 2nd infection**
b) **Nephrotoxicity**
c) **Ototoxicity**
d) **Pseudomembranous colitis**

57. Which antibiotic is known for causing ototoxicity, especially when used in high doses?* important

a) **Erythromycin**
b) **Vancomycin**
c) **Kanamycin**
d) **Ciprofloxacin**

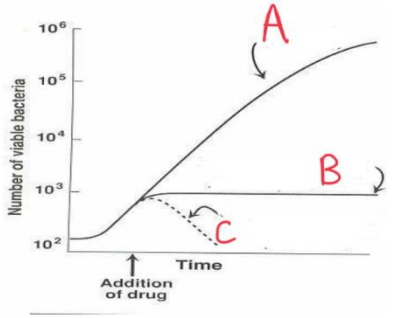
58. The usage of Ceftaroline is to treat infections caused by:

a) **Methicillin-resistant Staphylococcus aureus (MRSA)**
b) **Pseudomonas aeruginosa and C.difficle**
c) **Escherichia coli and gram +ve**
d) **Mycobacterium tuberculosis**

59. Which class of antibiotics is specifically used for its very narrow spectrum?

a) Macrolides
b) Tetracyclines
c) ionized
d) Quinolones
e) None of the above

60. What does curve C on the graph indicate about the action of the drug added at that time point?



A) It represents a control group where no drug was added, showing natural bacterial growth.
B) It indicates the action of a bactericidal agent
C) It shows the action of a bacteriostatic agent
D) It illustrates the regrowth of bacteria after the initial action of a bactericidal agent due to drug resistance.

61. Which antibiotic is associated with causing a metallic taste as a side effect?
A) Amoxicillin
B) Cephalexin
C) Fosfomycin
D) Doxycycline

penicillin anti pseudomonal= piperacillin تعبت وأنا أكتب ، المهم ما تنسوا الـ كم سؤال يلي حطهم الدكتور بالمحاضرات وما تنسوا انه أفضل

- **Good combination is PNC with aminoglycosides**
- **Polymyx more nephrotoxic than aminoglycosides**
- **Monobactam for g -ve only**
- **Cholestatic hepatitis with macrolids**
- **TetraCyclin IS Not given with milk, mg,...**
- **Nalidixic acid is 1st gen for quino family**
- **Quino family not taken with iron or ca++**
- **Sulfamethoxazole is the most common used**
- يا رب يكون مفيد إلكم ، ان أحسنتُ فمن الله وإن اسأت فـ مني.
- وَما نَيلُ المَطالِبِ بِالتَمَنّي .وَلَكِن تُؤخَذُ الدُنيا غِلابا

- **كتابة وتدقيق: شهد الأحمد**

.1	D
.2	B
.3	C
.4	C
.5	C
.6	B
.7	B
.8	C
.9	B
.10	B
.11	B
.12	A
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.56	D
.57	C
.58	A
.59	C
.60	B
.61	C