№ ЛД -16 (ИН)

Federal State Budgetary Educational Institution of Higher Education "North Ossetian State Medical Academy" of the Ministry of Health of the Russian Federation

department Pharmacology with Clinical Pharmacology

APPROVED
minutes of the meeting of the Central Coordinating Educational and Methodological Council dated March 22, 2022. No 4

VALUATION FUND

discipline "Antimicrobial chemotherapy»

the main professional educational program of higher education - a program of a specialist in a specialty 31.05.01 Medical business approved on March 30, 2022
for students 6 courses

by specialty 31.05.01 Medical business

Reviewed and approved at the meeting of the department on March 21, 2022.
(minutes No. 10)

Vladikavkaz

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Ministry of Health of the Russian Federation

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Pharmacology

List of questions for the test

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QUESTIONS

1. General properties of antimicrobials. Classification. General principles for the use of antimicrobials. Mechanisms of antimicrobial action.
2. Natural penicillins (benzylpenicillin sodium and potassium salt, phenoxymethylpenicillin, bicillin-1, bicillin-5). Spectrum of antimicrobial actions. Features of pharmacokinetics. Indications for appointment. Side effects. Emergency care for the development of anaphylactic reactions. drug interaction.
Antistaphylococcal penicillins (oxacillin). Spectrum of antimicrobial action. Features of pharmacokinetics. Indications for appointment. Side effects.
drug interaction.
Penicillins with an extended spectrum of activity (ampicillin, amoxicillin). Spectrum of antimicrobial action. Features of pharmacokinetics. Indications for appointment. Side effects. drug interaction.
Antipseudomonal penicillins (azlocillin, piperacillin). Spectrum of antimicrobial action. Features of pharmacokinetics. Indications for appointment. Side effects. drug interaction.
Inhibitor-protected penicillins (amoxicillin/clavulanate, ampicillin/sulbactam, ticarcillin/clavulanate). Spectrum of antimicrobial action. Features of pharmacokinetics. Indications for appointment. Side effects.
drug interaction. Combined penicillins
3. Cephalosporins of the first generation (cefazolin, cephalexin). Spectrum of antimicrobial actions. Features of pharmacokinetics. Indications for appointment. Side effects. drug interaction.
II generation cephalosporins (cefuroxime, cefaclor). Spectrum of antimicrobial actions. Features of pharmacokinetics. Indications for appointment. Side effects. drug interaction.
III generation cephalosporins (ceftriaxone, ceftazidime, cefotaxime, cefoperazone). Spectrum of antimicrobial action. Features of pharmacokinetics. Indications for appointment. Side effects. drug interaction.
IV generation cephalosporins (cefepime). Spectrum of antimicrobial action. Features of pharmacokinetics. Indications for appointment. Side effects. drug interaction.
5th generation cephalosporins (ceftarolin, ceftobiprole). Spectrum of antimicrobial actions. Features of pharmacokinetics. Indications for appointment. Side effects. drug interaction.
4. Carbapenems (meropenem, imipenem/cilastatin, doripenem, ertapenem). Spectrum of antimicrobial action. Features of pharmacokinetics. Indications for appointment. Side effects. drug interaction. Monobactams (aztreonam). Spectrum of antimicrobial action. Features of pharmacokinetics. Indications for appointment.
Side effects. drug interaction. Features of pharmacokinetics and pharmacodynamics of beta-lactam antibiotics in pregnant women and the fetus.
Peculiarities of pharmacokinetics and pharmacodynamics of beta-lactam antibiotics in children.
5. Aminoglycosides. (streptomycin, gentamicin, amikacin, netilmicin and etc.). Classification. Aminoglycosides of the first generation. Spectrum of antimicrobial actions. Features of pharmacokinetics. Indications for appointment. Side effects. Security monitoring. Methods for calculating the glomerular filtration rate (GFR). drug interaction.
Aminoglycosides of the second, third generations. Spectrum of antimicrobial action. Features of pharmacokinetics. Indications for appointment. Side effects. Safety monitoring. Drug interaction when prescribed with drugs of other groups.

Fluoroquinolones. Classification. "Gr-negative" fluoroquinolones (ciprofloxacin, ofloxacin, lomefloxacin). Spectrum of antimicrobial action. Features of pharmacokinetics. Indications for appointment.
"Respiratory" fluoroquinolones (levofloxacin). Spectrum of antimicrobial action. Features of pharmacokinetics. Indications for appointment.
"Respiratory-antianaerobic" fluoroquinolones (moxifloxacin). Spectrum of antimicrobial action. Features of pharmacokinetics. Indications for appointment

Macrolides. Classification. Mechanism of antimicrobial action. Natural macrolides (erythromycin, etc.). Spectrum of antimicrobial action. Peculiarities pharmacokinetics. Indications for appointment. Synthetic macrolides (clarithromycin, azithromycin, roxithromycin, etc.). Spectrum of antimicrobial action. Features of pharmacokinetics. Indications for appointment. The concept of "post-antibiotic effect" "new" macrolides. Macrolides and drug interactions at the level of biotransformation. Side effects.

Tetracyclines (tetracycline hydrochloride, doxycycline). Mechanism of action. Spectrum of antimicrobial action. Features of pharmacokinetics. Indications for appointment. Side effects. drug interaction.
6. Etiology of community-acquired pneumonia (pneumococci, atypical microorganisms, respiratory viruses, etc. Laboratory diagnostics and additional research methods. Rules for sampling material for microbiological diagnostics (sputum, blood). Pneumococcal rapid test. Characteristics of the main classes
antimicrobials used in the treatment of community-acquired pneumonia (beta-lactam antibiotics, macrolides, fluoroquinolones). Etiotropic therapy
community-acquired pneumonia. The choice of initial antibiotic therapy in outpatients with community-acquired pneumonia (in patients without comorbidities, who have not taken antimicrobials in the last 3 months and in patients
with concomitant diseases and / or taking in the last 3 months. antimicrobials). Criteria for the effectiveness of antibiotic therapy. duration of antimicrobial therapy.
The choice of an antibacterial drug in case of ineffectiveness of the initial regimen of CAP therapy on an outpatient basis. The choice of starting antibiotic therapy in hospitalized patients (severe and non-severe course). Criteria
effectiveness of antibiotic therapy. Timing of evaluation. duration of antibiotic therapy. Stepwise antibiotic therapy for community-acquired pneumonia.
causative agents of nosocomial pneumonia. The choice of an antibacterial drug depending on the timing of the onset of nosocomial pneumonia (early, late). Antimicrobial pneumonia exacerbations of COPD
7. The main causative agents of intra-abdominal infections. Principles of treatment of intra-abdominal infections. Uncomplicated intra-abdominal infections (without
peritonitis): perforation of gastric or duodenal ulcer, penetrating wounds of the abdominal cavity, acute cholecystitis / cholangitis, liver abscess, acute appendicitis - drugs of choice, alternative drugs. Complicated
intra-abdominal infections: widespread peritonitis / abscess (primary peritonitis, secondary, postoperative, infected forms of pacreonecrosis, tertiary peritonitis). Surgical infection of the biliary tract. Penetration of antimicrobial agents into bile. The choice of antibacterial drug.

duration of antimicrobial therapy. Criteria for the effectiveness of therapy. Prevention of intra-abdominal candidiasis. Risk factors for invasive candidiasis. Features of the treatment of intra-abdominal infections during pregnancy, lactation. Features of the treatment of intra-abdominal infections in the elderly. Features of the treatment of intra-abdominal infections in children. Antibacterial therapy in high-risk patients.
8. Uncomplicated urinary tract infections (UTIs) (acute cystitis and urethritis, acute uncomplicated pyelonephritis in pregnancy, recurrent infection
urinary tract). main pathogens. Acute uncomplicated cystitis. Indications for bacteriological examination of urine Drugs of choice. Recurrent (uncomplicated) lower urinary tract infection. Drugs of choice. Russian
recommendations for the empiric choice of AMPs for the treatment of UTILs. Acute uncomplicated pyelonephritis of a non-severe course. Acute uncomplicated pyelonephritis of severe course. Apostematous pyelonephritis. Kidney abscess. Tactics of antimicrobial therapy. Acute pyelonephritis of pregnant women. First line drugs. Urosepsis. Diagnostics. Treatment strategy.

Nosocomial urological infection. spectrum of pathogens. Features of therapy. "Foreign body" infection, catheter - associated infection of the urinary
pathways (urethral catheter, development of biofilms inside and outside catheters, stents, chronic infection in the body). Drugs of choice for the treatment of complications
urinary tract infections (UTIs). Combination Therapy for UATIs - Current Recommendations.
8. Classification of skin and soft tissue infections. Uncomplicated infections (furuncle and furunculosis, carbuncle, hidradenitis, erysipelas, cellulitis, uncomplicated abscesses). Complicated infections (traumatic, bitten, postoperative wounds,
diabetic foot syndrome, bedsores, trophic ulcers, burn wounds). Microbiological diagnostics. Material collection. Etiology of skin and soft tissue infections (S. pyogenes, S. Aureus, MRSA, P. Aeruginosa, Enterobacteriaceae, anaerobes-Prevotella, Porphyromonas spp.,
Bacteroides, Fusobacterium spp., Peptostreptococcus. Clostridium spp.). General principles for the use of antibiotics. Principles of rational use of antibiotics in surgery.
duration of antibiotic therapy. sufficiency criteria
antibiotic therapy. Treatment of primary uncomplicated skin infections and
soft tissues. Primary complicated infections of the skin and soft tissues (necrotizing fasciitis, pyomyositis, myonecrosis (gas gangrene). Antibiotic therapy.
Secondary infections (bites, surgical site infections).
Antibiotic prophylaxis of infection
areas of surgical intervention. Treatment of surgical site infection. duration of antibiotic therapy.
Purulent-necrotic forms
diabetic foot syndrome. Antibacterial therapy. Bedsores. Factors affecting the development of bedsores.
Antibacterial therapy.
Burn wound infections. Therapy tactics.

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Samples of test tasks

discipline "Antimicrobial chemotherapy»
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Samples of test tasks

A combination of antibacterial drugs is used:
1) to avoid the development of microbial resistance
2) to obtain synergy
3) to expand the spectrum of action of a combination of drugs
in the association of bacterial agents
4) to preserve kidney function
5) to preserve liver function

Well-absorbed (more than 70%) antibiotics include:
1) chloramphenicol
2) ampicillin
3) metacycline
4) doxycycline
5) rifampicin
6) everything is correct o

Moderately absorbed (30-50%) antibiotics include:
1) oxacillin
2) phenoxymethylpenicillin
3) erythromycin
4) oleandomycin
5) tetracycline
6) that's right

Poorly absorbed (less than 30%) antibiotics include:
1) benzylpenicillin
2) levorin
3) streptomycin
4) aminoglycosides
5) nystatin
6) everything is right

Antibiotics, the dosage regimen of which is corrected when creatinine clearance drops below 50 ml / min, include:
1) aminoglycosides
2) carbenicillin
3) cephaloridine
4) ristomycin
5) polymyxin B
6) everything is
true

Check the antibiotics, the dosage regimen of which is corrected when the creatinine clearance drops below 30 ml/min.:
1) benzylpenicillin
2) penicillin
3) methicillin
4) oxacillin
5) cephalosporins (except cephaloridine)
6) that's right

Antibiotics of the cephalosporin group:

1) active against gram (+) cocci

2) active against Escherichia coli, Klebsiella, Proteus

3) can be nephrotoxic at high doses in combination with aminoglycosides 4) can be freely used if a history of allergic reactions to penicillin is indicated

5) are the drugs of choice for the treatment of infective endocarditis

Aminoglycoside antibiotics:

1) plasma transfer of genetic information can lead to the emergence of forms of pathogens resistant to aminoglycosides

2) used to treat infective endocarditis in combination with penicillin or vancomycin

3) have a bactericidal effect, because. they disrupt the order of attachment of amino acids when the peptide chain enters the ribosome

4) are usually metabolized in the liver

5) gram (-) bacteria are usually insensitive to aminoglycosides

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Exam problem standards

in the discipline "Antimicrobial chemotherapy"

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TASKS

TASK #1. Patient N., 40 years old, was admitted to the surgical department 3 days after the onset of the disease. Upon admission, the patient complains of pain in the right iliac region, above the womb, the left iliac region. From the anamnesis it is known that the pain began in the epigastrium and after a few hours migrated to the right iliac region. About 12 hours the pain spread to all the lower abdomen. On examination, the general condition of the patient is severe, conscious, the skin is of low humidity, the tongue is dry. Pulse 92 per minute, BP 110/80 mm Hg. The abdomen is moderately swollen and tense in the lower sections. Due to tension in the muscles of the anterior abdominal wall
the study is difficult, palpation in the lower sections is sharply painful, positive symptoms of peritoneal irritation are determined.

1. Make a preliminary diagnosis and indicate the tactics for this patient.
2. Justify the nature and extent of preoperative preparation in this case.
3. Prescribe postoperative treatment.

TASK #2. In the surgical department there is a patient K., 30 years old, who underwent an operation 8 days ago - appendectomy for gangrenous perforated appendicitis, diffuse peritonitis. The postoperative period proceeded satisfactorily. On the 3-4th day, the drainages were removed from the abdominal cavity. However, on the 5th day there were dull pains in the lower abdomen. By the 8th day of the postoperative period, the body temperature increased to 38.5, bloating appeared, periodically rumbling, gases were moving away, there was stool. In the mesogastrium, a volumetric formation is indistinctly palpable, soft-elastic consistency, painful, 8x6 cm in size. There are no symptoms of peritoneal irritation. On digital examination of the rectum, there is no pathology. Suspected intestinal abscess.

1. Give a definition and name the most probable causes of the development of
an interintestinal abscess.
3. Plan of diagnostic measures with research results.
4. Prescribe postoperative treatment.

TASK #3. Patient B., 18 years old, is being treated in the surgical department. She underwent an operation - appendectomy - 5 days ago for gangrenous appendicitis, typhlitis, and local peritonitis. The abdominal cavity was sutured tightly, although the stump of the process could not be reliably immersed due to the phenomena
typhlitis. After the operation, the body temperature was subfebrile, in the last
2 days began to rise, in the evening to 38-39.5. There were pains in the lower abdomen, tenesmus. There is no nausea, vomiting, appetite is somewhat reduced. When examining per rectum determined: gaping anus, overhanging and soreness of the anterior wall of the rectum. When examining per vaginum: overhanging the posterior fornix of the vagina, severe pain when the uterus is displaced.

1. Make a preliminary diagnosis.
2. What do you see as the most likely cause of the disease? What mistakes were made by the surgeon during the operation?
3. Assign additional methods of examination to clarify the diagnosis. Expected results.