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DEPARTMENT: PRECLINICAL SCIENCES

DISCIPLINE: PHARMACOLOGY

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TOPICS AND REFERENCES

Chapters:

1. Antibiotics
2. Antiparasitic and antifungal drugs
3. Anti-inflammatory drugs

References:

1. Riviere J.E., Papich M.G., (2017) -*Veterinary Pharmacology and Therapeutics -Tenth Edition*, Ed John Wiley& Sons
2. Draghici Alina, Course notes

QUESTIONNAIRE

Questions with five possible answers, of which only one is correct.

Choose the wrong answer: Antibiotics may have :

- A. antibacterial activity
- B. antifungal activity
- C. anti yeasts activity
- D. antiviral activity
- E. antiprotozoal activity

Choose from the options below an antibiotic with bactericidal action.

- A. Tetracycline
- B. Gentamicin
- C. Erythromycin
- D. Azithromycin
- E. Clindamycin

Choose from the options below the antibiotic with bacteriostatic action.

- A. Neomycin
- B. Ampicillin
- C. Oxacillin
- D. Doxycycline
- E. Cefazolin

Choose from the quinolones below the one that is used only in veterinary medicine:

- A. Norfloxacin

- B. Enrofloxacin
- C. Ciprofloxacin
- D. Enoxacin
- E. Gemifloxacin

Choose the wrong answer:

- A. Vancomycin is a glycopeptide with narrow spectrum of action
- B. Vancomycin is effective in infections with Methicillin-resistant *Staphylococcus aureus*
- C. Vancomycin has bactericidal action
- D. The most important side effects of vancomycin are nephrotoxicity and ototoxicity
- E. Vancomycin is considered “Last resort” drug in veterinary medicine for the treatment of infections with *Staphylococcus aureus*

Deafness is the main undesirable side effect after prolonged use of:

- A. Tetracycline
- B. Penicillin
- C. Streptomycin
- D. Gentamicin
- E. Cephalosporin

Choose an antibiotic that can be effective in treating infectious meningitis:

- A. Ampicillin
- B. Amoxicillin
- C. Rifampicin
- D. Tetracycline
- E. Chloramphenicol

Choose from below the substance that is effective against anaerobic bacteria, but also against some protozoa:

- A. Fluoroquinolones
- B. Chloramphenicol
- C. Cephalosporins
- D. Polymyxins
- E. Metronidazole

Choose the wrong answer: Chloramphenicol is:

- A. bacteriostatic
- B. rarely used in humans
- C. hematotoxic
- D. widely used in animals of economic interest
- E. forbidden in pets

Which of the antibiotics below has the broadest spectrum of action?

- A. Polymyxin B
- B. Cefazolin
- C. Tetracycline
- D. Oxacillin
- E. Polymyxin E

Gram negative bacteria have natural resistance to:

- A. Penicillins
- B. Aminoglycosides
- C. Fluoroquinolones
- D. Penicillins, Aminoglycosides, Fluoroquinolones
- E. Polymixin E

From the examples below choose the correct statement:

- A. Florfenicol is a „second line antibiotic“
- B. Florfenicol is an antibiotic used seldom in humans
- C. Florfenicol is an antibiotic used only in humans
- D. Florfenicol is an antibiotic used seldom in animals
- E. Florfenicol is antibiotic used only in animals

Choose from the options below an antibiotic that belongs to Category 2 (antibiotics from the „second line“):

- A. Enrofloxacin
- B. Erythromycin
- C. Clindamycin
- D. Streptomycin
- E. Polymixin B

Choose from the options below: According to the recommendation of use, Vancomycin belongs to:

- A. First category of antibiotics
- B. Antibiotics from the „second line“
- C. Second category of antibiotics
- D. Third category of antibiotics
- E. Antibiotics from the „first line“

„These reserved antimicrobials should be used only when there are no alternative antimicrobials authorized for the respective target species and indication“, is a statement that refers to:

- A. Fluoroquinolones
- B. Cephalosporins
- C. Fluoroquinolones and Cephalosporins
- D. all Fluoroquinolones and Cephalosporins from the 3rd and 4th generation
- E. only Fluoroquinolones and Cephalosporins from the 3rd and 4th generation that reach in the systemic circulation

„For antibiotics whenever possible, individual treatment of the affected animal(s) (e.g. injectable treatments) should be preferred to group or mass treatment“ is a recommendation made by EMA to reduce the risk of:

- A. Overdosing
- B. Underdosing
- C. Intolerance to the medicinal product
- D. Resistance to the active substance
- E. Toxicity

When should we not wait for the results of sensitivity tests to administer an antibiotic?

- A. Never
- B. When we suspect an etiological agent sensitive to the antibiotic that we intend to use
- C. If we use a broad-spectrum antibiotic
- D. When we have an emergency
- E. If we use the same antibiotic used at another farm where there were animals with similar clinical signs

Choose from the below options and complete the statement: “..... should be reserved for the treatment of clinical conditions which have responded poorly, or are expected to respond poorly, to other classes of antimicrobials.”

- A. Vancomycin
- B. Enrofloxacin
- C. Tetracycline
- D. Rifamycins
- E. Cefazolin

In relation to the current tendency to minimize the risk of developing and spreading antibiotic resistance, choose from the options below the wrong requirement:

- A. The prescription and dispensation of antimicrobials must be justified by a veterinary diagnosis in accordance with the current status of scientific knowledge.
- B. Antimicrobial susceptibility testing should be carried out to determine the choice of antimicrobial
- C. Antibiotics will be used prophylactically whenever is considered necessary
- D. A narrow-spectrum antimicrobial should always be the first choice
- E. Administering medication to an entire herd or flock should be avoided whenever possible.

Choose the wrong statement:

- A. Antimicrobial metaphylaxis should be prescribed only when there is a real need for treatment
- B. The veterinarian should justify and document the treatment on the basis of clinical findings on the development of a disease in a herd or flock
- C. Antimicrobial metaphylaxis should never be used in place of good management practices
- D. Metaphylaxis can be applied in all categories of animals
- E. Metaphylaxis involves the administration of antibiotics to contact animals, without clinical signs of disease

Critically important antibiotics

- A. can not be used in animals
- B. can not be used in pets
- C. can not be used in horses
- D. can not be used in food producing animals
- E. can be used only in young animals in order to increase the chances of survival

Currently in the treatment of bacterial meningitis it is recommended to use cephalosporins from the:

- A. 1st generation
- B. 2nd generation
- C. 3rd and 4th generation
- D. 4th generation
- E. 5th generation

Which of the following antibiotics work by inhibiting nucleic acid synthesis?

- A. Enrofloxacin
- B. Gentamicin
- C. Penicillin V
- D. Clindamycin
- E. Polymyxin B

For the treatment of Lyme disease it is recommended to use cephalosporins from the:

- A. 1st generation
- B. 2nd generation
- C. 3rd generation
- D. 4th generation
- E. 5th generation

Inhibition of protein synthesis is not the mechanism of action for:

- A. Aminoglycosides
- B. Tetracyclines
- C. Macrolides
- D. Amphenicols
- E. Beta lactam antibiotics

Which of the following antibiotics works by inhibiting cell wall synthesis?

- A. Enrofloxacin
- B. Gentamicin
- C. Penicillin V
- D. Clindamycin
- E. Polymyxin B

Cephalosporins are bactericidal and they act :

- A. by inhibiting the bacteria cell wall synthesis
- B. as protein synthesis inhibitor
- C. as an anti 50-ribosome subunit
- D. as a DNA synthesis inhibitor
- E. as an anti30-ribosome subunit

An antibiotic will have a longer duration of action if:

- A. C_{max} after administration is higher
- B. if the percentage of active substance molecules linked to plasma proteins is higher
- C. if the percentage of active substance molecules linked to plasma proteins is lower
- D. C_{max} after administration is lower
- E. T_{max} after administration is higher

MIC represents:

- A. the maximum safe plasma concentration of an administered antibiotic
- B. the minimum safe plasma concentration of an administered antibiotic
- C. the minimum plasma concentration of an antibiotic at which the development of a microorganism is inhibited
- D. the maximum plasma concentration of an antibiotic at which the development of a microorganism is inhibited
- E. the maximum intermediar concentration of an antibiotic

Which is the most important side effect of antibiotics in the GI tract:

- A. suppression of normal flora
- B. toxic effects
- C. the intensification of the peristaltis
- D. the decrease of the peristaltis
- E. antibiotics have no side effects on the GI tract

Which of the following practices increases the risk of developing antibiotic resistance?

- A. exceeding the recommended dose
- B. underdosing
- C. administration of an antibiotic for more than 10 days
- D. extrapolation of the administration to other species than the target
- E. administration of an antibiotic for more than 5 days

What kind of resistance is that which is predictable and chromosomally mediated?

- A. aquired resistance
- B. natural resistance
- C. resistance to a single antibiotic
- D. multiple resistance
- E. cross-resistance

Extrachromosomal mutations - are very often (90%). This type of mechanism of resistance to antibiotics consists in transmission of plasmids from one bacterium to another by:

- A. conjugation
- B. phage transduction
- C. transformation
- D. conjugation, phage transduction, transformation
- E. conjugation, transformation

Rimadyl Cattle 50 mg/ml Solution for Injection is a medicinal product that contains carprofen. This product is used in the treatment of:

- A. Infections of the mamary gland of the cattle in the dry period, as the main treatment
- B. Mastitis of the cattle in the lactation period, as the main treatment
- C. As an antiinflammatory drug in acute infectious respiratory disease
- D. Heart disease
- E. Carprofen is not indicated in cattle.

Alomec 18.7 mg/g Oral Paste for Horses contains Ivermectin and it is not indicated in the treatment of infestation with:

- A. Large strongyles
- B. Small strongyles
- C. Pinworms
- D. Stomach bots
- E. Lices

Bayvarol 3.6 mg Bee-hive strips for Honey Bees is an antiparasitic medicinal product containing flumethrin. It is indicated in the treatment of:

- A. American foulbrood of honey bees
- B. European foulbrood of honey bees
- C. Small hive beetle infestation (*Aethina tumida*)
- D. Tropilaelaps infestation of honey bees
- E. Varroosis of honey bees

In emergencies:

- A. we can use a broad-spectrum antibiotic
- B. we choose an antibiotic with a narrow spectrum of action
- C. we wait the results of the laboratory tests
- D. we use the antibiotic we have at hand until the laboratory results arrive
- E. we can use an antibiotic that acts by inhibiting the synthesis of DNA of the microorganisms

Choose the exception:

How can healthcare professionals help prevent the spread of antibiotic resistance?

- A. prescribing an antibiotic only when it is likely to benefit the patient
- B. prescribing an antibiotic that targets the bacteria that is most likely causing the patient's illness when an antibiotic is likely to provide benefit
- C. encouraging patients to use the antibiotic in the line of the package leaflet
- D. collaborating with each other, office staff, and patients to promote appropriate antibiotic use
- E. encouraging patients to use the antibiotics for prevention

It is contraindicated to associate an immunosuppressive with:

- A. NSAIDs
- B. glucocorticoids
- C. sulfonamides
- D. antibiotics
- E. antivirals

Classical NSAID:

- A. inhibit Cox1
- B. inhibit Cox 2
- C. inhibit Cox 1 and Cox2
- D. inhibit Cox1 and stimulate Cox2
- E. stimulate Cox1 and inhibit Cox2

Cyclooxygenase 2 could be found in:

- A. normal tissues
- B. inflamed tissues
- C. both types of tissue
- D. none of the 2 types of tissues none
- E. in greater quantity in inflamed tissue and in smaller quantities in normal tissue

Ketoprofen works by inhibiting synthesis of:

- A. PGI₂
- B. PGE₂
- C. PGF₂ α
- D. PGI₂, PGE₂, PGF₂ α
- E. PGE₂, PGF₂ α

Choose the exception: The general features of NSAID PK are:

- A. usually good bioavailability from oral, intramuscular and subcutaneous administration routes
- B. a lower degree of binding to plasma protein
- C. low volumes of distribution
- D. crosses the placenta
- E. most metabolites are eliminated through urine

Which of the following effects are not specific for NSAID:

- A. a strong anti-inflammatory
- B. analgesic
- C. antipyretic
- D. antiemetic
- E. prevent aggregation of blood platelets

One of the most common side effect to NSAIDs is:

- A. liver failure
- B. kidney failure
- C. GI disorders
- D. skin reactions
- E. behavioral disorders

Administration of an NSAID increases the risk of hypoglycaemia when is associated with:

- A. oxicams
- B. another NSAID
- C. furosemide
- D. acepromazine
- E. sulfonamides

From the list below choose the best analgesic:

- A. acetylsalicylic acid
- B. ibuprofen
- C. metamizole
- D. carprofen
- E. ketoprofen

Agranulocytosis is one of the secondary reactions of:

- A. acetylsalicylic acid
- B. ibuprofen
- C. metamizole
- D. carprofen
- E. ketoprofen

The anti-inflammatory that can cause liver necrosis due to prolonged use is:

- A. paracetamol
- B. diclofenac
- C. carprofen
- D. ketoprofen
- E. indomethacin

From the examples below, the analgesic of first intention in young animals and in pregnant animals could be:

- A. ketoprofen
- B. carprofen
- C. ibuprofen
- D. paracetamol
- E. metamizole

Choose the correct and complete answer: Ketoprofen 100 mg/ml is an:

- A. anti-inflammatory medicinal product
- B. NSAID
- C. antibiotic
- D. corticosteroid
- E. anti-inflammatory product among classic NSAIDs

Which of the following active substances is not recommended to be used in the treatment of inflammation in cats:

- A. aspirin
- B. carprofen
- C. ketoprofen
- D. piroxicam
- E. meloxicam

Which of the following is an anti-inflammatory active substance that can selectively inhibit Cox2?

- A. meloxicam
- B. nimesulide
- C. celecoxib
- D. meloxicam, nimesulide, celecoxib
- E. meloxicam and nimesulide

Choose the wrong answer: Glucocorticoids inhibit inflammation, by:

- A. decreasing primary and secondary response of macrophages
- B. inhibiting the activation of component C3 of the complement
- C. inhibiting the production of collagenase

- D. increasing the release of histamine
- E. inhibiting the production of elastase and cytokines

Which of the following substances does not fit with the others in the group of inhibitors of cyclooxygenase-2 ?

- A. meloxicam
- B. nimesulide
- C. robenacoxib
- D. celecoxib
- E. carprofen

Choose the wrong answer: Trocoxil 95 mg chewable tablets is a medicinal product:

- A. that contain celecoxib
- B. indicated for the treatment of pain
- C. indicated for the treatment of inflammation associated with degenerative joint disease
- D. for dogs
- E. for cases where continuous treatment exceeds one month

Thrombostop is a drug indicated for the treatment and prophylaxis of thromboembolic disease. The association with NSAID is:

- A. recommended
- B. not recommended
- C. contraindicated
- D. there are no reactions between the 2 active substances
- E. the 2 substances cancel each other

Choose the wrong answer: Flunixin is:

- A. a corticosteroid
- B. a NSAID
- C. an analgesic
- D. an antinarcotic
- E. an antiendotoxic

In order to reduce the risk of ulcer in dogs in case of long-term administration of antinflammatory drugs, it is preferable to use:

- A. oral solutions with paracetamol
- B. suppository with diclofenac
- C. tablets with mavacoxib
- D. tablets with carprodil
- E. tablets with aspirin

Glucocorticoids can determine:

- A. carbohydrate metabolism
- B. protein metabolism
- C. water retention
- D. salt retention
- E. all answers are correct

Choose the correct answer: Other effect of glucocorticoids, besides anti-inflammatory, is:

- A. antiallergic action
- B. decreases the synthesis of lymphocytes by the thymus, lymph nodes, spleen
- C. increases hemoglobin concentration
- D. action on digestive system by stimulating gastric secretion of pepsin and hydrochloric acid
- E. all answers are correct

Choose from the options below a short-acting glucocorticoid:

- A. hydrocortisone
- B. prednisone
- C. methylprednisolone
- D. dexamethasone
- E. triamcinolone

Choose from the options below a long-acting glucocorticoid:

- A. hydrocortisone
- B. prednisone
- C. methylprednisolone
- D. dexamethasone
- E. triamcinolone

Choose from below what is the most important side reaction following a long term glucocorticoid administration:

- A. steroid diabetes
- B. fluid retention
- C. decreases the ability of the body's defense
- D. steroid diabetes, fluid retention, decreases the ability of the body's defence
- E. glucocorticoids have no side effects

Choose from the following examples a glucocorticoid obtained from natural sources:

- A. prednisone
- B. prednisolone
- C. hydrocortisone
- D. methylprednisolone
- E. paramethasone.

In animals with thrombocytopenia it is contraindicated to administer:

- A. Cephalosporins
- B. Fluoroquinolones
- C. Macrolides
- D. NSAIDs
- E. Any antibiotic

Choose the wrong answer: Ketofen 10% solution for injection is a product that contains ketaprofen and it is indicated for:

- A. treatment of infectious mastitis of the dry cows
- B. the alleviation of inflammation and pain associated with musculoskeletal disorders
- C. the alleviation of visceral pain associated with colic

- D. reduction of the pyrexia and distress associated with bacterial respiratory disease when used in conjunction with antimicrobial therapy as appropriate
- E. reduction of pain associated with lameness

Easotic Ear Drops Suspension for Dogs - Multidose is a veterinary medicinal product that contains the following active substances: hydrocortisone aceponate, miconazole nitrate and gentamicin sulphate. In what kind of condition can the product be ineffective?

- A. acute otitis externa caused by a bacteria
- B. acute exacerbation of recurrent otitis externa caused by *Malassezia pachydermatis* associated with a bacteria
- C. acute otitis caused by *Malassezia pachydermatis*
- D. acute otitis caused by *Otodectes cynotis*
- E. acute otitis caused by *Candida albicans*

Betamethasone valerate is a potent synthetic corticosteroid (dexamethasone-analogue) used for topical application. It is indicated for the treatment of:

- A. pyoderma caused by *Staphylococcus aureus*
- B. intertrigo (allergic contact dermatitis)
- C. fungal dermatitis
- D. viral infection
- E. demodicosis

Mastiplan LC, 300mg/20mg (Cefapirin/Prednisolone), intramammary suspension for lactating cows is a medicinal product used for the treatment of clinical mastitis in lactating dairy cows. Taking into account the indication and the active substances from the product, identify the type of etiological agent that cannot be affected by the product.

- A. *Staphylococcus aureus*
- B. *Escherichia coli*
- C. *Fusobacterium necrophorum*
- D. *Streptococcus agalactiae*
- E. *Streptococcus dysgalactiae*

A dog infected with *Microsporum canis* can be treated with:

- A. Imaverol 100 mg / ml Concentrate for Cutaneous Emulsion, a product containing enilconazole
- B. Fungizone 10 %, oral solution, a product containing amphotericin B
- C. Macmiror ointment, a product containing nistatin
- D. any of the mentioned products
- E. an endectocide

Which of the following species has a higher sensitivity to Griseofulvin?

- A. cattle
- B. sheep
- C. dog
- D. cat
- E. goat

Griseofulvine is not effective in the treatment of:

- A. infection with *Trichophyton verrucosum*,

- B. infection with *Microsporum canis*
- C. infection with *Microsporum gypseum*
- D. infection with *Malassezia pachydermatis*
- E. ringworms

The mechanism of action of ketoconazole consists of:

- A. disruption of multiplication of the fungi
- B. inhibition of the synthesis of ergosterol
- C. increasing the permeability of fungal cell membrane as a result of the modification of the ergosterol structure
- D. modification of the nucleic acid synthesis process
- E. the mechanism of action is unknown

Amfotericin B acts by:

- A. disruption of multiplication of the fungi
- B. inhibition of the synthesis of ergosterol
- C. increasing the permeability of fungal cell membrane as a result of the modification of the ergosterol structure
- D. the modification of the nucleic acid synthesis process
- E. the mechanism of action is unknown

Identify the "intruder" of the group:

- A. Fluconazol
- B. Itraconazol
- C. Clotrimazol
- D. Terbinafine
- E. Thiabendazol

To which groups of active substances do Fluconazol, Itraconazol and Clotrimazol belong?

- A. Polyenes
- B. Other antibiotics
- C. Allylamine derivates
- D. Azole
- E. They belong to another group

Which one from below affirmations is not correct when we speak about an ideal anthelmintic? An antihelmintic should have:

- A. high therapeutic index
- B. a narrow/targeted spectrum of activity
- C. a short withdrawal periods
- D. minimum/no side effects
- E. accessible price

The mechanism of action of benzimidazoles consists of:

- A. bind to beta-tubulin and so they compromise the cytoskeleton
- B. inhibit the mitochondrial phosphorylation
- C. inhibitors of glycolysis
- D. GABA agonists

E. inhibitors of acetylcholinesterase

Choose from the substances below which one is highly effective against immature *Fasciola hepatica* in the liver parenchyma and against the mature stage in the bile ducts:

- A. albendazole
- B. triclabendazole
- C. fenbendazole
- D. oxibendazole
- E. thiabendazole

Choose from the following substances the one that could be effective against adult flukes, tapeworms and rounds:

- A. albendazole
- B. febantel
- C. fenbendazole
- D. flubendazole
- E. mebendazole

Which active substance from the examples below is effective only against roundworms?

- A. triclabendazole
- B. mebendazole
- C. oxfendazole
- D. ricobendazole
- E. oxibendazole

If we use Levamisol in a cow, we will not have results if the animal is infected with:

- A. *Thelazia* spp.
- B. *Dicrocoelium lanceolatum*
- C. *Ostertagia ostertagi*
- D. *Haemoncus contortus*
- E. *Dictyocaulus viviparus*

The mechanism of action of levamisol consists of:

- A. inhibition of nematode lymph nodes with paralysis of the musculature
- B. disturbance of the energy metabolism of the parasite
- C. interruption of the reproductive cycle
- D. degradation of the integument of the parasite
- E. the mechanism of action is unknown

In which species Levamisol is rarely used as antiparasitic active substance but as a immune stimulant:

- A. cattle
- B. sheep
- C. horses
- D. dogs
- E. cats

Which of the following active substances is most commonly found in combination with pyrantel for broadening the range of action in dogs?

- A. morantel
- B. actamer
- C. praziquantel
- D. nitroscanate
- E. niclosamid

Choose from the following active substance the one that is effective in the treatment of Fasciolosis in sheep:

- A. fenbendazole
- B. oxibendazole
- C. clorsulon
- D. morantel
- E. levamisole

Amitraz is an active substance that belongs to the group of:

- A. organochlorines
- B. organophosphorics
- C. formamidines
- D. neonicotinoids
- E. synthetic pyrethroids

Choose from the pyrethroids below which one is used in the treatment of varroosis in bees:

- A. deltamethrin
- B. flumethrin
- C. permethrin
- D. tetramethrin
- E. levamisol

Which of the following substances is not part of the group of Isoxazolines:

- A. Afoxolaner
- B. Fluralaner
- C. Fipronil
- D. Sarolaner
- E. Lotilaner

Frontline contains fipronil. It is effective against:

- A. fleas and ticks
- B. fleas, ticks and mange
- C. ticks
- D. fleas
- E. mange

Diflubenzuron is part of the group:

- A. amidines
- B. synthetic pyrethroids
- C. benzoylureas
- D. macrocyclic lactones

E. neonicotinoids

Neonicotinoids are not efficient against:

- A. fleas
- B. flies
- C. lice
- D. fleas, flies, lice
- E. mites

In the veterinary pharmacies there are products for dogs that contain fipronil and methoprene. These products are not efficient against?

- A. fleas
- B. flies
- C. lice
- D. fleas, flies, lice
- E. mites

An endectocide is an active substance efficient against:

- A. internal parasites
- B. external parasites
- C. internal and external parasites
- D. parasites from the GI tract
- E. parasites from respiratory tract

Choose the correct answer: Phenylpyrazoles

- A. are inhibitors of GABA
- B. are insecticide and acaricide
- C. are effective against fleas, flies, ticks, lice and mites
- D. are inhibitors of GABA, insecticide and acaricide, effective against fleas, flies, ticks, lice and mites
- E. are inhibitors of GABA, effective against fleas, flies, ticks, lice and mites

Which bacterial process(es) do quinolones and fluoroquinolones inhibit?

- A. DNA synthesis
- B. DNA synthesis and RNA synthesis
- C. Quinolones and fluoroquinolones do not affect nucleic acid synthesis
- D. RNA synthesis
- E. Quinolones and fluoroquinolones inhibit the protein synthesis

Natural penicillin that can be administered by oral route is:

- A. ampicillin
- B. methicillin
- C. amoxicillin
- D. phenoxymethylpenicillin
- E. ampicillin, methicillin, amoxicillin

Rifampicin exhibits the following antibacterial mechanism of action:

- A. inhibits bacterial RNA synthesis
- B. inhibits protein synthesis

- C. inhibits bacterial wall synthesis
- D. substitution of paraaminobenzoic acid
- E. interferes with the bacterial membrane

Aminoglycosides diffuse well into the following biological liquids, with one exception:

- A. pleural fluid
- B. pericardial fluid
- C. ascitic fluid
- D. cerebrospinal fluid
- E. synovial fluid

The group of avermectins includes:

- A. Abamectin
- B. Doramectin
- C. Eprinomectin
- D. Selamectin
- E. Abamectin, doramectin, eprinomectin, selamectin

What disease cannot be treated with metronidazole?

- A. Giardiasis
- B. Trichomoniasis
- C. Histomonosis
- D. Trypanosomiasis
- E. Coccidiosis

Neonocotinoides are not effective against:

- A. Fleas
- B. Flies
- C. Lice
- D. Ctenocephalides sp
- E. Mites

Halofuginone is:

- A. An antibiotic
- B. An antifungal
- C. An endectocide
- D. An antiprotozoal
- E. An antihelmintic

Toltrazuril is an active substance used for the treatment of:

- A. Coccidiosis
- B. Bacterial infections
- C. Inflammations
- D. Viral infections
- E. Contamination with Toxocara in dogs

Febantel is used especially in:

- A. Cats and dogs
- B. Cattle
- C. Horses
- D. Ruminants
- E. Birds

Spinosad is an ectoparasiticide authorized for use in:

- A. birds
- B. cats and dogs
- C. horses
- D. cattle
- E. sheep

Albendazole should not be administered in:

- A. Cattle
- B. Lacting cow
- C. Dry cow
- D. Horses
- E. Sheep

Lotilaner is an active substance used against:

- A. Ticks and fleas in cats
- B. Mites in cats
- C. Ticks and fleas in dogs
- D. Mites in dogs
- E. Lice in cats and dogs

Choose the exception: Selamectin is an active substance used in pets against:

- A. Mites
- B. Ticks
- C. Fleas
- D. Flies and mosquitoes
- E. Heartworms

Frontline contains fipronil. It is not effective against:

- A. Ctenocephalides spp
- B. Pulex irritans
- C. Rhipicephalus sanguineus
- D. Ixodes ricinus
- E. Sarcoptes scabiei var canis

Griseofulvin is effective against:

- A. Microsporum canis
- B. Candida albicans
- C. Malassezia pachydermatis
- D. Pseudomonas aeruginosa
- E. Staphylococcus aureus

Nystatin is effective in the treatment of infections with:

- A. Dermatophytes
- B. MRSA
- C. Yeasts
- D. *Microsporum gypseum*
- E. *Microsporum canis*

Enilconazol is effective in the treatment of infections with:

- A. Dermatophytes
- B. Yeasts
- C. MRSA
- D. Dermatophytes and yeasts
- E. *Microsporum canis*

Miconazol is effective in the treatment of infections with:

- A. Dermatophytes
- B. Yeasts
- C. MRSA
- D. Dermatophytes and yeasts
- E. *Microsporum canis*

Albendazole in cattle is not effective against:

- A. Roundworms
- B. *Nematodirus* spp
- C. *Bunostomum* spp
- D. Lungworms
- E. Mites

Clotrimazol cream is used for the treatment of skin infections caused by:

- A. *Sarcoptes scabiei*
- B. *Psoroptes scabiei*
- C. *Otodectes cynotis*
- D. *Chorioptes* spp
- E. *Trichophyton* spp

Oxibendazole is not effective against:

- A. *Nematodirus* spp
- B. *Strongylus edentatus*
- C. *Strongylus equinus*
- D. *Strongylus vulgaris*
- E. *Fasciola hepatica*

Triclabendazole is effective against:

- A. *Nematodirus* spp
- B. *Strongylus edentatus*
- C. *Strongylus equinus*
- D. *Strongylus vulgaris*
- E. *Fasciola hepatica*

Febantel is an active substance that is very often found in combination with other substances in medicinal products for:

- A. Sheep
- B. Cattle
- C. Horse
- D. Birds
- E. Dogs

Which of the following combinations is found in veterinary medicinal products for dogs?

- A. Febantel, Praziquantel, Pyrantel Embonate
- B. Febantel, Praziquantel, Pyrantel Embonate, Lotilaner
- C. Febantel, Praziquantel, Pyrantel, Pyrantel Embonate, Frontline
- D. Febantel, Praziquantel, Pyrantel, Pyrantel Embonate, Milbemycin
- E. Febantel, Praziquantel, Pyrantel, Pyrantel Embonate, Enilconazole

Doramectin is not recommended for the treatment of the infestation of the following species:

- A. Cattle
- B. Sheep
- C. Pigs
- D. Farm animals
- E. Dogs

Eprinomectin is effective against:

- A. Pulmonary and gastrointestinal roundworms
- B. Flukes
- C. Roundworms
- D. Mites
- E. Myiasis

Startect Dual Active Oral Solution is a combination between Abamectin and Derquantel and it is recommended in:

- A. Sheep
- B. Cattle
- C. Cats
- D. Dogs
- E. All species

Milbemycin oxime should be used only in:

- A. Pets
- B. Farm animals
- C. Horses
- D. Cattle
- E. Fish

Amphotericin B is effective against:

- A. Dermatophytes
- B. Yeasts
- C. MRSA

- D. Dermatophytes and yeasts
- E. *Microsporium gypseum*

Miconazol is not effective in the treatment of infections with:

- A. *Candida albicans*
- B. *Microsporium caninum*
- C. *Microsporium gypseum*
- D. *Trichophyton mentagrophytes*
- E. Trematodes

Antibiotics are not effective in the treatment of infections with:

- A. Sarcodina
- B. *Salmonella*
- C. *Streptococcus*
- D. *Staphylococcus*
- E. *Escherichia*

Antimicrobials are not effective in the treatment of:

- A. *Eimeria* spp
- B. *Trichomonas*
- C. *Trichuris*
- D. *Pseudomonas*
- E. *Trichophyton*

Antimicrobials should not be used in the treatment of infections with:

- A. *Isospora*
- B. *Eimeria*
- C. *Coccidia*
- D. *Nematodirus*
- E. *Candida albicans*

Antibiotics should not be used in the treatment of:

- A. Colibacillosis
- B. BRD
- C. Mastitis
- D. Influentza
- E. Urinary tract infections with *E. coli*

Albendazole is not effective against:

- A. *Nematodirus*
- B. *Dyctiocaulus*
- C. *Aviteline*
- D. Larvar form of *Fasciola hepatica*
- E. Adult form of *Fasciola gigantica*

Albendazole can be used “off label” to treat infestation with endoparasites in:

- A. Poultry

- B. Calfs
- C. Bulls
- D. Cattle
- E. Sheep

Febantel cannot be used in cats to treat infestation with:

- A. *Toxocara cati*
- B. *Toxascaris leonina*
- C. *Opisthorchis felinus*
- D. *Dipylidium caninum*
- E. Roundworms

Praziquantel has high efficacy against cestods of all species including dogs. It is also effective against an important fluke in dogs. This fluke is:

- A. *Toxocara cati*
- B. *Toxascaris leonina*
- C. *Opisthorchis felinus*
- D. *Dipylidium caninum*
- E. *Aelurostrongylus abstrusus*

Antimicrobials should not be used in the treatment of infections with:

- A. *Candida* spp
- B. *Trichophyton mentagrophytes*
- C. *Trichophyton versutus*
- D. *Microsporum canis*
- E. FeLV

Antibiotics should not be used in the treatment of:

- A. Infections with Gram negative bacteria
- B. Infections with Gram positive bacteria
- C. Infections with *Mycobacterium*
- D. Mucormycosis
- E. Infections with *Mycoplasma*

Product Doranor 5 mg/ml Pour-on Solution for Cattle contains doramectin. It is not effective against:

- A. *Fasciola hepatica* - adult form
- B. *Trichostrongylus axei*
- C. *Thelazia* spp
- D. *Hypoderma bovis*, *H. lineatum*
- E. *Damalinia (Bovicola) bovis*

Product Dectomax 10 mg/ml Solution for Injection for Cattle and Sheep contains doramectin. It cannot be effective against:

- A. *Haematopinus eurysternus*, *Linognathus vituli*, *Solenopotes capillatus*
- B. *Psoroptes bovis*, *Sarcoptes scabiei*, *Chorioptes bovis*
- C. *Damalinia (Bovicola) bovis*
- D. *Hypoderma* spp
- F. All species of internal parasites

Product Eprinex Multi 5 mg/ml Pour-on for Beef and Dairy Cattle, Sheep and Goats contains eprinomectin. It is not effective against:

- A. Oesophagostomum spp.
- B. Thelazia spp
- C. Fasciola hepatica
- D. Bunostomum phlebotomum
- E. Nematodirus helvetianus

Animec Super 10 mg/ml / 100 mg/ml Solution for Injection for Cattle contains clorsulon and ivermectin. Compared to products containing only ivermectin, the product is also effective against:

- A. Large strongyles
- B. Small strongyles
- C. Fasciola spp
- D. Pinworms
- E. Ascarids

Product Milbexorm 4 mg/10 mg Film-coated Tablets for Small Cats and Kittens contains Milbemycin Oxime and Praziquantel. Praziquantel from this combination will kill the following types of parasites:

- A. Echinococcus multilocularis, Dipylidium caninum, Taenia spp
- B. Dipylidium caninum and Taenia spp.
- C. Taenia spp. and Echinococcus multilocularis
- D. Ancylostoma tubaeforme, Toxocara cati
- E. Ancylostoma tubaeforme, Toxocara cati, Dirofilaria immitis

Choose the quinolone from the options below:

- A. Neomycin
- B. Oxacillin
- C. Enrofloxacin
- D. Cefazolin
- E. Doxycycline

Toltrazuril is a drug used in chickens and turkeys for the treatment of infections with:

- A. Candida spp
- B. Eimeria spp
- C. Nematodirus spp
- D. Cooperia spp
- E. Giardia spp

Vecoxan 2.5 mg/ml Oral Suspension is a medicinal product that contains diclazuril and it is indicated in sheep for the treatment of infections with:

- A. Eimeria spp
- B. Trichostrongylus spp
- C. Fasciola hepatica
- D. Teladorsagia circumcincta

E. Dictyocaulus viviparus

Amproline 400 mg/mL Solution for Use in Drinking Water for Chickens and Turkeys is a medicinal product that contains amprolium. This product is indicated for the treatment of infections with:

- A. Mucobacterium
- B. Trichomonas
- C. Eimeria
- D. Viruses
- E. Hexamita columbae

Levacur SC 3% Oral Solution is effective against mature and developing immature stages of levamisole susceptible worm species in cattle and sheep. One of the species below is an exception:

- A. Dictyocaulus spp.
- B. Cooperia spp.
- C. Chabertia spp.
- D. Dicrocoelium spp.
- E. Oesophagostomum spp.

.....is part of the avermectin's family:

- A. Eprinomectin
- B. Moxidectin
- C. Milbemycin oxime
- D. Deltamethrin
- E. Methoprene

Vectra Felis 423 mg/42.3 mg Spot-on Solution for Cats is a medicinal product that contains Dinotefuran and Pyriproxyfen. In cats the product can be used for:

- A. Treatment and prevention of infestations with Ctenocephalides felis
- B. Treatment and prevention of infestation with Ixodes ricinus
- C. Treatment and prevention of infestation with Pulex irritans
- D. Treatment and prevention of infestation with Rhipicephalus sanguineus
- E. Treatment of lice infestations

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