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Diseases and Medications Associated with the Food Animal Profession

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DISEASES AND MEDICATIONS ASSOCIATED WITH THE FOOD ANIMAL
PROFESSION

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I. DRUG CLASSIFICATION

A. ANTIBIOTICS

Definition—destructive of life, a chemical substance produced by a microorganism, which has the capacity to inhibit growth or kill other microorganisms. Antibiotics that are sufficiently nontoxic to the host are used as chemotherapeutic agents in the treatment of infectious diseases of man, animals and plants.

Examples:

- Oxytetracycline (LA-200, oxytet 100/200)
- Tylosin
- Florfenicol (Nuflor)
- Erythromycin
- Lincomycin
- Penicillin
- Amoxicillin
- Ceftiofur (naxcel)
- Enrofloxacin (baytril)
- Gentimycin
- Sodium iodide
- Tilmicosin (Micotil)

B. COCCIDIOSTATS AND COCCIDIOCIDALS

Definition—chemical product used to treat and control infection by coccidia

Examples:

- Sulfonamides
- Amprovine
- Bio-Cox
- Bovatec
- Corid
- Deccox
- Rumensin

C. *DIURETICS*

Definition—an agent that increases the excretion of urine.

Examples;

-Furosamide (lasix)

D. *ANTI-INFLAMMATORIES*

DEFINITION—agent used to counteract or suppress inflammation or the inflammatory process.

Examples:

-Flunixin (banamine)

-Phenylbutazone

-Aspirin

-Dexamethasone

-Prednisilone

E. *ANTHELMINTICS/ECTOPARASITIC CONTROL*

Definition—an agent that is destructive to worms (dewormer), and those agents that kill or inhibit reproduction of external and internal parasites.

Examples:

-Ivermectin products

-Safe-guard (fenbendazole)

-Levamisole

-Dectomax

-Cydectin

II. **COMMON USES FOR ABOVE MEDICATIONS**

A. *ANTIBIOTICS*

Antibiotics are used primarily to help control and contain those infections that are related to bacteria. They have little effect on viral infections but are often used with this type of disease process to help prevent secondary bacterial infections. There are two basic types of antibiotics: bacteriostatic and bactericidal. Bacteriostatic antibiotics are those used to slow down the replication and growth of the bacteria and weaken it so the animals' own immune system can control and kill the infection. Bactericidal antibiotics are those that work directly on the bacteria killing in many different mechanisms. It is important to know what type of infection you are dealing with in order to correctly choose the appropriate type of antibiotic to use. Antibiotics can be used together to help control a wider spectrum of bacteria and help amplify

their effects. In the same fashion if two are used together incorrectly they can counteract each other rendering them useless. Always follow the directions according to dose and withdrawal periods as well as the advice from your Veterinarian.

B. COCCIDIOSTATS AND COCCIDIOCIDALS

As stated, these type of drugs help control coccidia. Coccidia can be a very costly disease resulting in failure to gain and thrive, as well as death. It is most commonly noticed as a bloody diarrhea. Correct diagnosis by your Veterinarian is essential as well as treatment. Without proper care and treatment coccidiosis will result in death due to a nervous system toxicosis.

C. DIURETICS

Diuretics are most often used to help control excess or build up in fluid known as edema. They are most commonly used in the dairy industry for udder edema. In high elevations they are an important treatment in those animals experiencing High Mountain Disease. They are a common drug used to help control pulmonary edema in humans and cattle suffering from High Mountain Disease.

D. ANTI-INFLAMMATORIES

Anti-inflammatory drugs are an extremely important aspect in treating disease and are often underused. They can help to control pain, fever, endotoxic shock, as well as amplifying the effects of other medications. They should always be used in a treatment protocol in treating such diseases as pneumonia, scours, foot rot, diphtheria, and any toxic problem. By reducing fever, pain and blocking endotoxins they can help in animal survival. Often these types of drugs are used at castration/dehorning to control pain and reduce off feed time.

E. ANTHELMINTICS/ECTOPARASITIC CONTROL

A number of these products have now become available. They include oral, injectable and pour-on. Many of these types of drugs now control internal parasites well as ectoparasites like lice. Visit with your Veterinarian as to which of these products is best suited for your area.

III. PRACTICAL APPROACH TO THE SICK ANIMAL (ADR)

When deciding if an animal is not feeling well always approach the case in the same manner each time. This excludes of course the obvious illness such as the animal that is unable to get up or has already died. Try to get in a habit that will allow you to approach a questionable animal the same way each time. Observe them from a distance; notice things such as:

1. Weight and Size

Compare to the others in the herd. This helps to determine if this case is acute or chronic. Ask yourself if the animal has lost weight, or if it is smaller than the others are.

2. Observe Stance

Is the animal hunched up and having difficulty breathing? This could possibly be respiratory pain secondary to pneumonia and/or pleuritis.

3. Is there a Nasal Discharge?

Nasal discharges are almost always associated with a respiratory disease; either upper or lower respiratory tract can be involved.

4. Eating

Is the animal eating or has it been eating? These types of findings can again point you to acute or chronic possible stomach or intestinal disease.

5. Is it Lambe or having difficulty moving?

If the animal is having difficulty moving this may be due to abdominal pain versus if it is lame, it may be associated with foot/leg pain (i.e. foot rot).

Remember this type of exam is best done from a distance. If the animal is approached too rapidly then the excitement of your presence is covering the signs you need to know. After observing from a distance do a complete exam including temperature, heart rate, and respiration.

For example you are watching a yearling steer from the fence and may note things like this,

-Animal standing alone

-Is hunched up and hasn't moved since I've been watching about 10 minutes.

-There is a thick yellow to white nasal discharge.

-It appears to be having some problem breathing.

-Respiration is about 40 breaths per minute

-The steer has not lost any weight and was fine yesterday, acute problem

-Is not eating at this time but was yesterday

-Trying to get it to the chute it is hesitant to move and is very slow. Some groaning

-Is coughing some as it is being moved

-Exam in chute, temperature 106.5, heart rate 145 beats per minute, respiration 42 breaths per minute, there are no Ruminant gut sounds; there is a puss like material draining from its nose.

With this type of history you can present the case to your Veterinarian if needed or this can guide you to a treatment protocol. In this case the primary diagnosis would be an acute case of Viral or Bacterial pneumonia. Whichever case, rapid treatment is required. This treatment may include, antibiotic directed at the respiratory system, anti-inflammatory to help decrease the fever and help the animal feel better which may help it begin eating again, administering of fluids IV, SQ., and or orally. Often follow up care is essential for complete treatment.

In summary as you are approaching a sick animal and considering the use of medication remember and consider (1) What type of medication you may choose (2) Is it directed at the system you wish to treat? (3) Is the dose correct, (4) what is the route of administration, and the withdrawal time? Also consider is the medication best used alone or in conjunction with another. Remember to always try to consult with your Veterinarian for a complete diagnosis and treatment protocol.

IV. NORMAL PARAMETERS

<u>ANIMAL</u>	<u>TEMP</u>	<u>RESP (BR/MIN).</u>	<u>HEART RATE</u>
BOVINE	100-103	30	60-70
HORSE	98-100	12	42-48
SHEEP	102-103	19	60-120
PIG	100-103	20	80-120
GOAT	101-103	20	70-130

V. Gross Pathology of Food Animals (Necropsy)

A Necropsy (autopsy) should be done on any and all animals that have died regardless of what is thought to be the cause of death. A quick simple Necropsy can often lead to a complete diagnosis or raise enough concern that professional help from your local Veterinarian should be received and from which further and more in-depth work-up can be completed. It is important to remember that in many cases and diseases of cattle there are multiple factors involved with the death. For instance, many cattle that die of pneumonia may die from a bacterial infection but a Virus may have given rise to the bacterial infection. You must keep this in mind when doing your Necropsy and don't stop at the first finding. You should also keep in mind that many times the cause of death cannot be determined by Necropsy alone and detailed lab work is required to assist you, by your veterinarian.

Below is a list of common cattle diseases with a brief description of the disease and the lesions you may see at Necropsy.

A. *BRSV* (Bovine Respiratory Syncytial Virus)

1. Etiology

Virus

2. Clinical signs

Clinical signs include primarily yearling age cattle with respiratory symptoms, high fevers (104-108 F), depression, decreased appetite, mouth breathing and nasal discharge. This disease often leads to a fatal bacterial infection.

3. Epidemiology

Can spread very rapidly, 20% fatal without bacterial involvement.

4. Necropsy Findings

Interstitial pneumonia with emphysema resulting in air bubbles in lung tissue, ranging in size from pin tip size to 2-3 inches in diameter. The lung will remain full of air and “Puffy” even after the chest cavity has been opened.

B. *PI-3* (*Para Influenza*)

1. Etiology

Virus

2. Clinical Signs

Clinical signs include fever, cough, nasal and ocular discharge and an increase in respiratory rate. Most of these infections go unnoticed but can give rise to a more severe bacterial infection.

3. Epidemiology

Most commonly affects yearling cattle under stress and gives rise to more severe diseases. Can be widespread and very contagious.

4. Necropsy Findings

PI3 rarely can be diagnosed on necropsy alone. It can result in inflammation (reddening) of the bronchi and trachea as well as take on many of the characteristic of BRSV but to a lesser degree.

C. *IBR* (Infectious Bovine Rhinotracheitis)

1. Etiology

Virus

2. Clinical signs

Clinical signs can range from very mild to severe and fatal depending on whether or not bacterial infection is present. Signs include fever, anorexia, increased respiratory rate, salivation, depression, anorexia, cough, ocular and nasal discharges, red nose, severe conjunctivitis, corneal opacities may be present, and abortions.

3. Epidemiology

Most commonly seen in feedlot situations and/or where crowding is a problem. Is most often associated with stress, i.e. shipping, hence the name shipping fever.

Adult cattle may carry the disease without symptoms. Is leading cause of abortion in the western U.S.

4. Necropsy Findings.

Most commonly associated with *Pasteurella pneumoniae*. The trachea may be full of bloody mucus and foam. Plaques may be seen in the mouth, nose and trachea. If IBR is suspected, full diagnostics with your Veterinarian is recommended.

D. Bacterial Pneumonia

1. Etiology

Pasteurella, *Hemophilus*, *E. Coli*.

2. Clinical signs

Once a bacterial infection begins, the animal becomes apparently and visibly sick. This includes severe depression, anorexia, fever, cough, nasal discharge, ears down, increased respiratory rate, and often death. Death can take place very quickly, i.e. overnight.

3. Epidemiology

Can take place in any situation and affect any age of cattle. Younger cattle are usually affected over older mature cattle. Is often related to stress and weather. Most commonly follows a viral infection. Death rate and percent can be very high.

4. Necropsy

Bacterial pneumonia, especially *Pasteurella*, have a very distinct pattern to them. The most cranial ventral (most forward and bottom) of the lungs are often consolidated and covered with fibrin strands. The bacteria tend to fall to the bottom portions of the lungs and consolidate there and replicate. The lung tissue becomes thick and solid more like liver tissue. There can be areas of hemorrhage throughout the lungs and heart.

E. Brisket Disease

1. Etiology

Pulmonary hypertension secondary to low oxygen availability in high altitude resulting in congestive right heart failure.

2. Clinical signs

Clinical signs vary with the degree the animal is affected. Signs can range from depression to swelling in the brisket, abdomen and jaw region -secondary to edema, jugular pulse, diarrhea, poor appetite, bulging eyes, exercise intolerance, and death.

3. Epidemiology

Can affect all ages of cattle but most commonly seen in younger cattle. Most often seen at elevations above 7000 feet, but has been seen at elevations of 5000 ft.

4. Necropsy

Examining the chest cavity can usually make diagnosis of Brisket Disease. When the chest cavity is opened there will usually be an abundance of fluid

within the chest. The heart will be a rounded shape instead of its normal conical shape.

F. Abomasal Ulcers

1. Etiology

The exact mechanism of ulcers is not understood but thought to be related to a stress situation. Has also been related to a copper deficiency.

2. Clinical signs

The calf will often be bloated or have a distended abdomen and kick at its gut. It will act uncomfortable lying down and getting up. Depression will be followed by death.

3. Epidemiology

Most commonly affects the better-doing calves of the herd. Thought to be related to a stressful situation or situations in which the calf is separated from the dam or at least does not nurse for a period of time then ingests a large amount of milk.

4. Necropsy

Diagnosis of ulcers is fast and easy, when opening the abdominal cavity of the animal an abundance of fluid, often with milk and food debris, will be free floating in the abdomen. Close examination of the stomach will often diagnose a large perforating ulcer/hole.