Perspectives of the History and Development of Metaphylactic Treatment with Antibiotics and How I Implement today.

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ABSTRACT

Of all the diseases and health problems that newly arrived cattle in a feed yard face, by far the bovine respiratory complex (BRD) is the most common and most costly. There are many approaches to preventing and treating respiratory disease in new cattle, including; vaccines, feed additives, feeding programs, and low stress handling. Many of the new cattle have been stressed by weaning, hauling long distances, co-mingling and stressful handling. Thus, in these cattle there may be a need for antibiotic therapy on arrival or soon after arrival, that practice is called metaphylactic treatment with antibiotics.

Key words: BRD, stress, metaphylactic antibiotic treatment.

INTRODUCTION

Since the beginning of the cattle industry as we know it, cattle have been weaned, driven or hauled and co-mingled. The bovine respiratory disease complex was and is a result of these stresses. Most attempts at treating BRD were unsuccessful until the advent of the sulfa drugs and penicillin. These products were very effective if the cattle were treated early in the respiratory disease cycle. Then as now, treating after the disease progressed to severe lung damage was unsuccessful.

I was introduced to production medicine (herd health) from my experience with our cattle, swine and sheep operations. In the late 1960's, when I graduated from veterinary school, not much mass treatment with antibiotics was practiced in our area. Soon after that as we became more involved in a herd health approach with our clients we quickly saw the value of mass treating certain loads of new cattle or cattle breaking with respiratory disease with an antibiotic.

My perspective and experience with history of metaphylactic treatment with antibiotics.

Some of the early mass treatment programs were;

-IV treatment with Liquamycin (oxytetracycline 50 mg.) in loads of cattle breaking with respiratory disease. This was very time consuming but very effective. One single IV dose seemed to be very effective.
-Mass treatment with penicillin G or a long lasting penicillin product. This approach was much faster, again this was mainly in loads breaking with respiratory diseases.

You always had epinephrine with you as a reaction was common, especially in Mexican cattle.

-Sulfathiazole in the water, while not an antibiotic this practice seemed to be very effective in new cattle and in treating respiratory breaks. we developed a fairly elaborate system to deliver this to the water systems in many of the operations.

-AS 700 & Aureomycin - was used in mass treating many diseases including pinkeye, foot rot, anaplasmosis and BRD. These products still remain available with a VFD.

-Erythromycin - this practice did no last long because of the tissue reaction at the injection site, often in top butt area.

In the late 70's we saw a drastic change in the approach to mass treating cattle. As I look back now it was not pretty. I will call these the dark years of metaphylactic antibiotic therapy. Some of the practices were:

-Mixing products or compounding, often 2 different antibiotics and a vitamin.

-Aminoglycosides: gentamicin, and neomycin - These 2 products were used on a large scale because of cost and the apparent effectiveness. Cattle were often ran 2 or 3 days in a row.

-Chloramphenicol - This product appeared to be quite effective but we soon saw human health consequences in those using this product.

-Lincomycin

-Spectinomycin products

This continued on a large scale throughout the 70's and 80's. These products were cheap and easy for producers to obtain.

Five things changed the picture in the late 80's and 90's.

1. Ceftiofur was introduced in the late 80's. This drug was low dose, easy to administer and effective. I did not see much metaphylactic use of ceftiofur until the introduction of ceftiofur crystalline free acid.

2. Tilmicosin was introduced in 1992, at the time it was used as an individual animal treatment drug but soon after we saw the value as a metaphylactic
treatment antibiotic.

3. Post treatment interval (PTI) - this concept changed the management of riding new cattle after individual treatment as well as cattle mass treated.

4. AVC resolution on aminoglycoside use in food animals.

5. Realization of tissue residue issues with aminoglycosides.

Today, in my mind in the feedlots and in progressive stocker operations, metaphylactic treatment with antibiotics is carried out according to FDA guidelines on extra label use, withdrawal times and route of administration.

HOW I IMPLEMENT METAPHYLACTIC TREATMENT WITH ANIBIOTICS TODAY.

When I develop treatment and processing protocols I always try to remember these 4 guiding principles:

1. Our cattle procurement system often is not health friendly, in fact, it is just the opposite.

2. Don't mess up the adrenal gland health.

3. Don't mess up the gut health.

4. In newly received stressed cattle in a feed lot or stocker operation, the one thing that comes in a bottle that actually positively influences arrival health is an antibiotic.

Factors that I Consider when Developing a Metaphylactic Treatment with Antibiotic Protocol;

- History of cattle
- Condition on arrival
- Weather and season
- Number of cattle being received at this time
- Age & weight
- Hospital pen space
- Break even estimates
CONCLUSION

Metaphylactic treatment with antibiotics remains an effective and economical approach to aiding the prevention and treatment of BRD. Now, more than ever, it is critical that we carefully evaluate the need in individual loads of cattle. This discretion will result in a more effective and economical use of this valued tool. We must recognize the value of this program as a tool and not a crutch.