

Field Results of Anaplasmosis Vaccination Programs in Southeast Oklahoma

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Anaplasmosis in my practice area is endemic. In the fifteen years I have practiced there it has been, in my estimation, the most costly pathological condition with which I have had to deal, with the exceptions of internal parasitism and the shipping fever complex.

Prior to the development and marketing of anaplasmosis vaccine (Anaplaz)*, we employed the complement fixation test during the non-vector season. This proved fairly effective but required careful management at all times. Due to the difficulties involved in maintaining complete isolation from neighboring herds and the reluctance of some herd owners to permanently identify carrier animals, this method of control was not widely accepted.

Since the CF test must be performed during the winter months, many owners who were enthusiastic about this method during an outbreak lost their enthusiasm by the time the test was needed. Brush in fence rows, washed-out water gaps, gates inadvertently left open, and bulls fighting through fences all contributed to failures with this method. The CF test procedure has been quite successful, however, in one 400-head purebred Charolais herd which maintains certified status for brucellosis and tuberculosis. Since it was a simple matter to perform the CF test from the same serum sample, we certified this herd four years ago for anaplasmosis. On the first test nine carriers were identified, seven of which were cleared of the carrier state by feeding aureomycin. The other two were sold for slaughter. The CF test has been negative each year since. To my knowledge, this is the only certified anaplasmosis-free herd in Oklahoma and I think Dr. Bill McCallon, with the USDA, told me it was the first such herd in the United States.

Other methods of control prior to the development of Anaplaz included feeding aureomycin or tetracycline injections. Not only is aureomycin feeding much more costly when fed during the entire vector season, it is also ineffective in many cases due to uneven consumption by individual cattle and failure by the herd owner to provide access to it at all times. Tetracycline injections proved effective enough but required working the cattle through a chute every thirty days. Of all the methods used by us prior to 1966, this was the most effective and most "saleable" program. At that time injectable tet-

racycline was much more costly than at present, but 1 to 1½ grams injected at 30-day intervals is a very good control measure if stress and labor costs are not considered.

It seems quite pertinent to describe our treatment regimen so that you can more fully appreciate what Anaplaz has done for us. Massive blood transfusions consisting of one to three gallons of whole blood is the only consistently effective treatment we have for the extremely anemic patient. When hemoglobin levels fall below 3.5 g%, whole blood is indicated. If the hemoglobin level is higher and the patient is not in the last two or three months of pregnancy, tetracycline and vitamin B₁₂ intravenously will usually suffice if adequate nursing care is possible. Since our location is such that obtaining blood from an abattoir is impractical, this blood is drawn from healthy cattle from the same herd. While the blood-drawing procedure takes only four or five minutes per gallon, the complete transfusion procedure takes one-half to three-quarters of an hour at best. The ease or difficulty varies with the means of restraint at hand. There have been many days in late summer and fall in especially bad years when we have treated ten to fifteen sick cattle with whole blood. This is a fine income producer for young, strong practitioners. We didn't do as much of this work as we wanted, but did about all we could stand. We still treat many cattle every year in this manner but our anaplasmosis workload has been cut 75% to 80% by the use of vaccination programs.

While Anaplaz is intended for use during the non-vector season, most owners have commenced vaccination programs during a summer or fall outbreak. Two doses of Anaplaz not less than 30 days and not more than six months apart are recommended for protection. During an outbreak we have used simultaneous injections of Anaplaz and one to one and one-half grams tetracycline followed by the second Anaplaz injection not less than one month later. Protection is usually complete two weeks after the second injection. This stops the appearance of the clinical disease almost without exception. Tetracycline injection alone would stop the new cases but the herd owner is anxious to create active immunity as soon as possible, and by using this system the cattle need be handled only half as much. If vaccination takes place, for instance, in the summer or fall of 1976 during an outbreak, the first booster dose need not be given until

*Fort Dodge Laboratories

sometime after the beginning of 1978 but before the vector season.

Of the herds under our supervision vaccinated originally during the non-vector season with booster doses administered as recommended, there has been no further appearance of clinical symptoms of anaplasmosis unless all individuals in the herd did not receive the vaccine or unless symptoms occurred in non-vaccinated additions to the herd. In my estimation this vaccine is the most efficacious I have ever used. I also believe that cattle vaccinated properly with Anaplaz have a much longer lasting immunity than the manufacturers originally thought. Many herds in my area were under a strict vaccination program for three or four years, at which time the economics of the cow-calf business fell apart. In an effort to economize, many owners took a calculated risk by not continuing the program. Clinical outbreaks in these cattle have been minimal. I submit that booster doses every two years after the primary series would probably be adequate for protection, although I have no scientific findings to prove this.

It is extremely important to stress that vaccination is not recommended without reservation in every case, for obvious reasons. For instance, the first case of clinical anaplasmosis in a dairy herd of approximately 400 cows appeared last September. This cow recovered and was subsequently positive on the CF test. The group of 80 cows she was with at the time she must have been exposed to the disease were subjected to the CF test in January and no other carriers were found. This group was kept across the fence from a neighboring herd known to have had some anaplasmosis infection. No further action will be taken except to completely clean the fence row of shade between these two pastures and to exercise more stringent external parasite control in the dairy herd. Vaccination is recommended only when other control measures appear inadequate or economically impractical.

Neonatal isoerythrolysis (NI) has been encountered in our practice. Fewer than one-half of one percent of the herds with anaplasmosis problems or herds under vaccination have experienced this condition. The herd incidence is extremely low, but the incidence

within those herds runs from 10% to 80%. Most cases occur in Charolais and Angus cattle. Our recovery percentage of treated cases is not satisfactory, but perhaps we are doing as well as can be expected. Vaccination with Anaplaz has been incriminated as a cause of this condition. Certainly Anaplaz must contribute to this occurrence but two questions remain unanswered. First, why is the incidence of NI so low on a vaccinated herd basis and so high within that herd? Second, why does it also occur in non-vaccinated herds?

I am certain there are cattle-producing areas in this country where, for various reasons, Anaplaz should never be used. For our area this product has been an extremely valuable tool and will remain so in the future. If I have a factory producing a product and have a choice between loss of the product only and loss of the factory, I would choose loss of the product, especially when the chances are relatively remote.

Since Anaplaz came on the market we have used and dispensed approximately 100,000 doses, which certainly represents only a portion of that used in our practice area. Surely this would be convincing evidence that we have had the opportunity for adequate field evaluation and that client acceptance is optimal.

Discussion

Dr. Searl (Fort Dodge Laboratories): For those of you who are interested in NI, I might be able to answer a few questions. There has been a publication on the occurrence of NI in Mexico. The vaccine is not available there, unless it has been smuggled! There is a different, modified live vaccine marketed there.

I made the first diagnosis of NI in the field in 1968. I searched for additional evidence and found that veterinarians were diagnosing NI in herds that had not been given anaplasmosis vaccine. In 1970 there were 70 or 80 reports from vaccinated herds and about 19 were from non-vaccinated herds. I threw out 13 of the latter as not fitting NI in non-vaccinated herds. Some had been vaccinated at some time.

My field statistics show that the better the breeding the more the incidence—Charolais on Charolais. It should be in those that have similar blood antigenic determinations—not on Charolais on Hereford or Charolais on Angus. They are in purebred or so-called purebred (7/8). As for NI incidence in a herd, I suppose 80% is a possibility. I have had one 33% in a 21-cow herd. If you had a two-cow herd you could go to 50 easily.