

Better safe than sorry...

Chicken Anemia chicken-aids Virus (CAV)

Cor Tensen a Dutch Barnevelder breeder: "I never heard of Chicken Anemia Virus or CAV in 2010. Unfortunately my knowledge is now up to date. For other breeders, to avoid a disastrous breeding season, I sound the alarm. Since I'm an 'ordinary' breeder and layman in poultry diseases I asked Dr. J.A. de Wit (poultry immunologist) of the governmental Animal Disease Centre to read and comment my article. He said: I couldn't have told it better. That's some compliment! The only way to prevent the horror of chicken-aids is by vaccination..."

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Photos: Sigrid van Dort

Loosing all your chicks... is not where you are waiting for....

To explain the virus a paper on CAV from Delaware Univerity (USA) is consulted.

Introduction

CAV was described for the first time in 1979 by Yuasa (Japan), in commercial poutry. Ever since, the virus is found in almost all countries of the world in broilers, layers and their parent stock. Transmission is both horizontal (from environment, eating, breathing, contact) and verticle (by the mother via the egg). Especially when the chick is infected via the mother, it will suffer from severe anemia, bruising and declined disease resistance to other viruses, secondary bacterial infections and coccidiosis. This condition causes up to 100% loss of chicks and growers.

The virus

CAV is a very small so called ciro-virus. These circo-virusses are hard to destroy whether by heat or chemical desinfectants. The virus is a common virus and it attacks and eliminates, during the first weeks of the chick's life, its immune system. CAV causes the death of cells in the thymus and bursa (gumboro!) which make B and T immune cells. The production of immune cells is made impossible. The little cell factories which make the immune cells are destroyed by the chicken-aids virus. Leaving the chick without defense against any disease. The immune cells are also called white blood cells (therefore pus in a wound is whitish, these are dead white blood cells). When the immune system is damaged or completely destroyed, its over, this won't heal ever. The chicken will catch diseases for the rest of its life, and any bug it encounters, it will die soon after wretched agony. The suffering is prolonged by the continued administration of

antibiotics, which won't help. The moment you quit supplying them hell starts again. Some antibiotics make the bird really ill, like sulfa based medicines, those make them nauseous and they won't eat.

Chickens of all ages can be infected with chicken-aids and the virus flies around like any other common virus, just like Mareks or 'cold' virusses. Healthy mature birds won't become sick from CAV. The immune system attacks the virus immediately. The virus only attacks the immune cell factories in the young chick. The moment the chick's immune system functions, the virus is defenseless against the attacks of the immune cells. But the healthy mature chicken will shed and distribute virus as long as its body fights it. All eggs during this period of time, are infected. Chicks born from these specific eggs will catch chicken-aids. They don't have an immune system to fight CAV and their mothers weren't ready either, they were still busy to make antibodies themselves and could not put antibodies in the eggs in time.

CAV is very virulent, its spreads easily and only a bit is necessary to cause trouble. Once in your stable, all birds will be infected in less than a few days (horizontal transmission). When a chick is infected with Marek, Gumboro or reo-virus, not only the period of time CAV damages will increase, but also vulnerability to the virus itself, app. up to 100 times. No immune systems means no defense against anything.

The disease

Chicken-aids can only do harm when the chick is infected in the first weeks of its life, both horizontal (environment) and verticle



“It doesn’t matter what you do, they seem to refurbish by anti-coccidiosis treatment, and when they are off medicine, it starts all-over again”

(mom). The disease shows by bruises on the wing tips (blue wing disease). Anemia and pale faces and combs are not easy to detect either in young birds. The birds are depressed and anorectic, marrow is light of colour because the amount of red blood cells drops significantly ($\leq 25\%$).

These symptoms which are caused directly by the virus are not easy to recognize and overlooked by 99.9% of the veterinarians. This in contrary to the secondary bacterial and parasitic infections, which come on top of the CAV infection. Sensitivity to coccidiosis and many more viruses are the next to discuss.

Stacked infections

Coccidiosis which not cures is a direct result of the impossibility to develop antibodies against these parasites, by which coccidiosis later in life will play a large role. This concerns most *Eimeria exervulnina*, *E. tenella* and *E. necatrix*.

Most of the time, coccidiosis infection induced by CAV is accompanied by *Clostridium perfringens* (an ordinary gut bacteria which explodes in amount), which is fatal when the bird has coccidiosis already. This is called necrotic enteritis, an intestinal infection that makes gut tissue to die. When coccidiosis is contained with a lot of effort, *Clostridium* will be the continuing problem, by which chronic enteritis (chronical intestinal infection) will be part of the life of your chickens. Nutrients are hardly absorbed by the gut and liver damage will occur as well. The birds look horrible and this is a sight you never forget.

Chickens with chronic intestinal infection will start to eat litter, bedding. They have terrible abdominal pains.

Staphylococcus aureus will cause, in chicks infected with CAV,

subcutaneous inflammation (infections directly under the skin), by which also the feather follicles are affected. *Staphylococcus aureus* is known for almost total resistance to antibiotics, its dangerous to us as well, an open wound can be recognized by yellowish matter, therefore the name: aureus - gold. Also infections in muscle tissues, joints and some organs occur by it. This will cause difficulties in moving and causes death in time. A *staphylococcus* infection in muscles can only be seen when you cut the chicken open.

Next in the list of secondary infections is AIS (Avian Intestinal Spirochetosis) caused by the bacteria *Brachyspira*, which lives in the appendix. It will cause infections and probably produces large amounts of toxins when it boosts due to CAV by which the gut can't absorb nutrients. The chicken becomes weaker and weaker.

Note: a CAV infected chicken has ALL these diseases the same time, or some, or in any combination. Just like human aids, the immune system is (almost) gone, and any bug that hits the chicken will make it ill and might kill it. Antibiotics work as long as they're supplied. When you stop, it all starts over again.

Next to the mentioned parasitic and bacterial disorders which are chronic, vulnerability to Marek, Reo and Gumboro increases tremendously in a flock which has caught CAV.

Treatment

When the chicks are infected at very young age, there is no cure, they are lost. Only secondary infections are very difficult to cure and the birds should be all the time on antibiotics and several

anti-coccidiosis treatments. This is next to very expensive (a vet should test for which disease the chickens should be treated over and over again), a never-ending story. Mortality will raise far above 50% when you have die-hards, and the ones which do survive by plain luck, will die sooner because of their bad immunity. They are retarded in growth, feathers look shredded, they look bad across the board from suffering and they are not happy and lively.

Prevention

Because you see the secondary infections, plus CAV doesn't occur in poultry industry anymore, its is seldom diagnosed. A lot of veterinarians even don't know its existence. The diagnosis will be most of the time: difficult to cure coccidiosis combined with bacterial infections. CAV can only be detected by blood. An Elisa-test can show the antibodies which is noted as 'titre'. Because mortality is 100% in a few weeks, its advised to vaccinate breeding birds. This way, chicks are protected by maternal immunity. This prevents not only a horrible time of all

kinds of diseases, ruining your breeding season thoroughly, but also suffering and money.

Because its not inconceivable that there are fanciers who lost almost all of their young birds, due to diseases which seemed incurable, its very likely CAV won't be found.

Suppose a breeder invests hundreds of dollars/euros in examination of ill birds, medicine, which Cor Tensen did, it still won't give an answer to what happened if the cause is so unknown in the fancy! He had luck with a skilled person with knowledge of chicken diseases and a good laboratory.

Note: all commercial poultry in the Western world is vaccinated against CAV, its standardized procedure. Unfortunately for us, hobby breeders, vaccine is costly because you can buy only dosis for 1000 birds. For the Dutch breeders, Loi Burger, former employee of the Animal Health Service for Poultry, has a solution. For vaccination of a small flock in Holland you can call him (06 53781442).



Every chick you breed, you wish a beautiful future. Nobody breeds ornamental poultry to loose them prematurely...

