International
Poultry Production's
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109 – Botulism II

Pathogenesis

Botulism can be caused by the ingestion of preformed toxin. Dead birds often have C. botulinum type C in their guts and, as dead birds provide ideal conditions for the growth of this bacterium and its production of toxins, carcases can contain high levels of toxin. Fly blown carcases can have maggots that contain high levels of toxin. Consumption of maggots can cause explosive outbreaks of botulism in chickens, pheasants or ducks. In aquatic environments small crustaceans and/or insect larvae may contain C. botulinum in their digestive tracts.

In some situations C. botulinum in the intestines of birds produces toxin and type C botulism has been produced in Leghorn chickens fed C. botulinum type C spores.

Immunity

The toxigenic dose is less than the immunogenic dose so immunity does not normally develop. However, antibodies to botulinal toxins have been encountered in carrion crows and vultures.

Diagnosis

Diagnosis is based on clinical signs and the lack of gross or microscopic lesions. Definitive diagnosis can be made by demonstrating toxin in moribund birds. The finding of toxin in dead birds is not diagnostic because C. botulinum type C is found in the guts of healthy birds and it can produce toxins in decaying avian tissues. The mild form of botulism needs to be differentiated from Marek's disease and drug and chemical toxicities as well as spinal problems. In water fowl, botulism needs to be differentiated from fowl cholera and toxicities, including lead poisoning.

Treatment

Sick birds will often recover if they are isolated and given food and water. Various treatments have been used over the years with varying degrees of success.

Prevention

Management should remove potential sources of C. botulinum type C and its toxin from the environment the birds are in. This includes the prompt removal of sick and dead birds.

Immunisation

Use of inactivated bacterin-toxoids has met with success in pheasant operations.