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144 – Enteric viruses

Introduction

Since the 1970s our knowledge about enteric viruses has increased. This occurred because of a realisation that pathogens other than bacteria and parasites could cause enteric disease. Diagnostic tools also became available, including direct and immune electron microscopy as well as more specific tests such as electropherotyping genomic RNA, which is used for the detection and differentiation of double stranded RNA viruses like reoviruses and rotaviruses. More recently PCR has been increasingly used.

The disease picture

Most enteric viral infections are seen in the three weeks after hatching. The clinical signs and lesions for many enteric viral infections are similar, therefore laboratory tests are required to identify the specific viral cause once a presumptive diagnosis of an enteric viral infection has been made. Often more than one enteric virus is involved, for example in poult enteritis and mortality syndrome (PEMS), which has been encountered in the USA.

Enteric viral infections typically cause diarrhoea and often the gastrointestinal tract is distended by gas and/or fluid. Most viruses do not stay in the bird for long and different viruses infect and replicate in different sections of the digestive tract and at different sites on the villi.

As yet, we do not have the means of culturing many enteric viruses in the laboratory which hampers the gaining of a better understanding of them.

There is no evidence of egg transmission of enteric viruses and active immunity plays a role in limiting the disease, but it would appear that passive immunity only plays its part in the first few days after hatching.

Enteric viruses are the most common cause of primary insults in the digestive tract of young poultry. These insults often provide the opportunity to attach and penetrate the cells of the digestive tract and cause further damage. Sometimes these bacteria cause a film on the surface of the villi.

It is the effect of antibiotics on these bacteria which has resulted in misplaced claims for these products to be effective against enteric viruses.

Much of the early work on enteric viruses was done in turkeys because of the commercial impact of the disease. More recently, work on enteric viruses has spread to broilers as enteric disease has become more significant in commercial broilers. Interestingly, many of the findings in broilers mirror those found in turkeys a few decades earlier.

Damage to the integrity of the digestive tract adversely affects the efficient utilisation of nutrients with the consequences of loss of flock uniformity and the emergence of poorly sized birds.

Treatment

There is no specific treatment but sometimes supportive therapy can be beneficial, such as the use of antibiotics to control secondary bacterial infections or the use of vitamins and electrolytes.