International Dairy Topics

Dairyhealth BYTES

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Other forms of E. coli

Although they are less common than the ETECs, other forms of E. coli are known which cause calf diarrhoea.

Enteropathogenic E. coli

Enteropathogenic E. coli (EPEC) are capable of attaching to the gut's lining damaging intestinal microvilli. EPECs do not produce enterotoxins but can produce various cytotoxins. EPECs have been isolated from calves with diarrhoea and these calves have had histopathological proof of effacement of microvilli in the caecum, colon and distal small intestine.

Shiga-like toxin producing E. coli

SLTECs are the E. coli that produce haemorrhagic colitis and haemolytic uraemic syndrome in man. These bacteria are occasionally found in calves. Some strains invade the walls of the large intestine and produce a severe haemorrhagic/ulcerative colitis. Those producing verotoxin (a shiga-like toxin) create an enterotoxaemia, inhibit protein synthesis and cause vascular damage in the affected intestine.

Clinical signs

Dysentery or fresh blood differentiates these two conditions from ETEC. In addition, the presence of a fever is much more common in these two conditions. Tenesmus or straining is seen as a consequence of the colonic straining. With some strains of SLTECs blood loss can be severe enough to cause anaemia and hypovolaemic shock. As malabsorption and protein loss can arise from the ulcerative and erosive lesions in the colon, calves affected with EPEC or SLTEC can have low albumin or total protein when blood tested.

Differential diagnosis

When dysentery is present, salmonellosis must be considered in the differential diagnosis. Other conditions to be considered include rotavirus, coronavirus, ETEC, salmonella, Clostridium perfringens type C and Cryptosporidium parvum.

Treatment

Treatment is similar to that for ETEC infections and antibiotics are frequently used. Unless intensive care can be provided the prognosis must be guarded.

Prevention

Examination of management procedures and correction of any deficiencies found is central to any prevention strategy. If multiple cases confirm a single causal bacterial strain to be involved the use of an autogenous bacterin in the dry period can be considered. Colostrum management and the passage of passive immunity must be considered.