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Escherichia coli, more commonly known as E. coli, is a normal bacterial inhabitant of the gut of farm animals and is ubiquitous in the farm environment. E. coli causes enteric/septicaemic disease in calves and is an important cause of neonatal deaths.

Aetiology

Colisepticaemia is a disease that young calves are predisposed to due to inadequate maternal immunity uptake (usually poor uptake of colostrum because the calf was withdrawn too early from its mother) and poor management. Factors that predispose the calf to large numbers of E. coli, such as poor pen design and poor cleaning, overcrowding and mixing of calves, failure to dip the navel and poor hygiene standards, are also important. Invasive E. coli are usually opportunistic and invade the calf from its gut causing the colisepticaemia. Calves receiving <500 mg IgC per dl are more prone to colisepticaemia than those receiving 500-1000mg IgC per dl. Levels over 1000mg are needed to avoid this disease.

Clinical signs

Infection usually occurs in the first two weeks of life when E. coli invade the calf's body through the mucous membranes of the nose, gut or pharynx or via a poorly healed navel. Clinical signs can usually be seen within 24 hours of infection. Infected calves are already shedding E. coli before the onset of their clinical signs.

In the very acute (peracute) form of this disease calves look depressed and weak with evidence of a fast heart rate (tachycardia) and dehydration. Although often present at the onset, fever has usually disappeared by the time that clinical signs have set in. The suckling reflex is often very weak or absent. Pinpoint haemorrhages are present on the mucous membranes and inside the ear flap.

Diarrhoea or scouring is often seen but in peracute cases this is often preceded by death. In surviving calves the disease tends to localise and clinical signs reflect this. This can be seen in changes to the eyes, paddling and opisthotonus when the brain is involved, swollen limb joints and a reluctance to walk or navel infection (omphalophlebitis).

Differential diagnosis

Conditions to be considered in a differential diagnosis include ETEC (enterotoxigenic E. coli) infections, asphyxia or trauma at birth, hypothermia and/or hypoglycaemia, salmonellosis, congenital defects, mycoplasma polyarthritis and ionophore toxicity.

Diagnosis

Diagnosis is based on clinical signs, low serum immunoglobulin level, post mortem examination and isolation of causative bacterium.

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