Fecal shedding of Rotavirus, Salmonella spp and Cryptosporidium oocysts in diarrheic neonatal calves

Fernanda Morcatti Coura, Leandro Paula, Aline Gomes, Moisés Dias Freitas, Marina Guimarães Ferreira, Grazielle Cossenzo Florentino Galinari, Andrey Pereira Lage, Elias Facury, Antonio Ultimo Carvalho, Marcos Bryan Heinemann

Departament of Preventive Veterinary Medicine, UFMG - Universidade Federal de Minas Gerais, Belo Horizonte, Brazil

The aim of the study: Diarrhea is an important cause of morbidity and mortality in pre weaned dairy calves. The economic impact is significant, such as death of animals, treatments, veterinary’s expenses and low productive performance of calves recovering. The occurrence of the disease depends on the immune status of calves and other risk factors. Some enteropathogens are commonly involved in this disorder, like Salmonella, Cryptosporidium and Rotavirus. The scour caused by organic disorders are often correlated with those infectious agents and the diagnosis is crucial to the success of the treatment of diarrhea and consequent reduction of losses. The aim of this study is to evaluate some agents involved in diarrheal disease in cattle neonates.

Methodology: Stool samples were collected from 33 calves with 48 hours of life, repeating weekly until the animals completed 60 days of life. During the episode of diarrhea the samples were collected every 24 hours. The material was processed in the Laboratório de Gastroenterites Transmissíveis dos Animais (Brazil). Diagnosis of Cryptosporidium was performed by the Ziehl-Neelsen modified. Salmonella spp was confirmed with biochemical tests and serotyped in the reference laboratory FIOCRUZ and rotavirus was detected by polyacrylamide gel electrophoresis.

Results: The incidence of Cryptosporidium oocyst was 100%. The earliest excretion occurred at five days and the latest after 25 days of life and most of it between 11th and 14th day with peak excretions on the 11th day. The incidence of rotavirus was 33%, and in some cases occurring concurrent infections with rotavirus and cryptosporidium.

The earliest shedding of Rotavirus occurred at 6th day and the latest at 38th day of life, with the majority between 12th day to 21st day of life, and peak of excretion on 18th day of life. The biochemical tests indicated a high incidence of Salmonella (22%). The positives samples were identified as Salmonella agona in 63%, Salmonella enteritidis in 9% and Salmonella enterica subsp. Enterica (O: 4.5) in 4.5%.

Conclusion: The incidence of the enteropathogens Rotavirus and Cryptosporidium spp are high in newborn calves.

Mixed infections with Cryptosporidium and Rotavirus are very common in neonatal diarrhea.

Salmonella agona was the most common specie identified.