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DETECTION AND MOLECULAR CHARACTERIZATION OF GENE 3 AND 5 OF TURKEY CORONAVIRUS FROM TURKEYS WITH SEVERE ENTERITIS IN BRAZIL

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Important Findings

The presence of turkey coronavirus (TCoV) in 12 intestinal content samples from turkey flocks aged between 10 and 104 days with severe enteritis was monitored in the period of 2004 to 2006. Study results suggest that the strategy of amplification of the 3' untranslated region (3'UTR) followed by sequencing of genes 3 and 5 has proved to be an effective means of detection of TCoV in intestinal contents. According to the genes sequenced, the Brazilian TCoV seems to be different from those described previously.

Significance of Findings

TCoV is a causative agent associated with poult enteritis and mortality syndrome (PEMS) in turkeys worldwide. The disease is an acute, highly contagious enteric disease of turkeys characterized by depression, anorexia, diarrhea, and high mortality in commercial turkey flocks. This is the first description of the molecular characteristics of TCoV in Brazil; the data gathered are invaluable for the molecular epidemiology of coronavirus-induced diseases in turkeys and may elucidate virus origin or recombinant events. Further studies examining the genetic relationships between the S

gene of TCoV and other avian coronaviruses are very important and necessary to establish the evolutionary relationships, to improve coronavirus classification, and to contribute to global epidemiology of TCoV.

Additional Information

TCoV is one of the major etiologic agents of diarrhea in turkeys between 1 and 6 weeks of age, and is characterized by anorexia, severe diarrhea, dehydration, and weight loss. TCoV is known as one of the enteropathogenic agents involved with PEMS, in association with increasing mortality levels in turkey farms. Besides the enteric effects, this virus causes circulatory disorders that mediate bluecomb disease.

Some studies have demonstrated that TCoV shows a phylogenetic relationship with the infectious bronchitis virus and is therefore classified as a Group 3 coronavirus. In Brazil, little information has been published on the occurrence of PEMS in turkeys. The first report of PEMS associated with turkey coronavirus and astrovirus, which presented high mortality, accentuated depression, and low performance, described outbreaks in 17 turkey flocks located in the south and southeast regions of the country. Subsequently, the presence of TCoV associated with PEMS in the southeast of Brazil has been described.