

TITLE: ENTERIC ADENOVIRUS EPIDEMIOLOGY FROM HISTORICAL FECAL SAMPLES IN BRAZIL

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ABSTRACT:

Viruses are considered the major etiologic agents of acute diarrhea among patients worldwide and human adenovirus (HAdV) are recognized as frequent causes of acute gastroenteritis. Enteric viruses can be preserved in frozen stored feces for long periods of times. The purpose of the present study was to investigate enteric HAdV genotypic diversity in archival fecal specimens stored from 1998 to 2005 in order to understand the natural history of HAdV in diarrheal patients in Brazil. A total of 3346 fecal samples were selected and tested for HAdV by conventional PCR. Positive HAdV samples were sequenced to obtain genotype identification. Two HAdV species E type 4 strains identified were phylogenetically analyzed. HAdV was detected in 228 cases (6.8%). The mean and median ages of HAdV positive patients were 8.7 years (ranging from 1 month to 71 years) and 1 year, respectively. The HAdV positivity was significantly higher in children ≤ 5 years and males ($p < 0.05$). HAdV infection was most frequently observed during winter and spring seasons ($p < 0.05$). HAdV-F41 was the most prevalent genotype (59.2%;135/228), followed by HAdV-F40 (16.2%;37/228). Other genotypes, including HAdV-C1 (5.2%;12/228), HAdV-C2 (5.2%;12/228), HAdV-C5 (3.1%;7/228), HAdV-A12 (1.3%;3/228), HAdV-E4 (0.9%;2/228), HAdV-B3 (0.9%;2/228) and HAdV-B21 (0.4%;1/228) were also detected. In 17 cases (7.6%;17/228) only species D could be defined. HAdV-E4 strains were classified as lineage (a)-like PG II. The findings obtained here confirmed the long-lasting implication of HAdV in diarrheal disease burden in Brazil. The predominant HAdV genotypes detected did not change over time, highlighting a high diversity of circulating HAdV strains in the country throughout decades. Due to the historical lack of HAdV genotyping surveillance in Brazil, HAdV-E4 epidemiology is virtually unknown in the country. The present study contributed significantly to the understanding of the natural history of HAdV in diarrheal patients in Brazil. The acquired data are important for studies investigating enteric viruses' prevalence and molecular epidemiology of archival clinical specimens.

Keywords: Gastroenteritis, diarrhea, enteric human adenovirus, molecular characterization, surveillance

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