

Acute gastroenteritis is one of the most frequent diseases in children worldwide and remains the main cause of childhood morbidity and mortality, particularly in developing countries. Each year as many as 1.5 million children less than five years die in the world from acute gastroenteritis. Our study has been aimed at demonstrating of the main role of viruses in the aetiology of acute gastroenteritis in children less than five years old and at pointing out the diagnostic potential of electron microscopy in viral gastroenteritis. A prospective study was conducted to analyse the aetiology of diarrhoeal diseases in children less than five years of age admitted to the Department of Infectious Diseases of the Na Bulovce Hospital, Prague, between September, 2006 and June, 2009. All children were tested by faecal culture for bacterial aetiology and by latex agglutination and electron microscopy for viral aetiology. A total of 1059 children were included in the study. The mean age of children was 1.9 years and the mean length of hospitalisation was 5.2 days. An aetiological agent was detected in 1051 children (95.9%). A bacterial aetiology was found in 22 (2.1%) children, bacterial-viral co-infection was found in 183 (17.3%) patients and viruses were detected in 810 (76.5%) patients. The main causes of viral gastroenteritis were rotaviruses (detected in 535 children), followed by caliciviruses (43), coronaviruses (43), adenoviruses (20) and astroviruses (19). Dual viral infections were detected in 150 children, with rotavirus-coronavirus co-infection being the most common. Eight hundred and fifty three (80.5%) children needed parenteral rehydration. Electron microscopy proved to be a more sensitive method in comparison with the latex agglutination test for the diagnosis of rotaviruses and adenoviruses. The major role of viruses in diarrhoeal diseases among children under five years of age in the Czech Republic has been confirmed.