

Multiple Etiologies and Incidences of Co-Infections in Childhood Diarrhea in a Hospital Based Screening Study in Odisha, India

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Abstract : Acute diarrhea is one of the major causes of morbidity and mortality among children less than five years of age. Multiple etiologies have been implicated for infectious gastroenteritis causing acute diarrhea. In our study fecal samples (n=165) were collected from children (<5 years) presenting with symptoms of acute diarrhea. Samples were screened for viral, bacterial, and parasitic etiologies such as Rotavirus, Adenovirus, Diarrhoeagenic Escherichia coli (EPEC, EHEC, STEC, O157, O111), Shigella spp., Salmonella spp., Vibrio cholera, Cryptosporidium spp., and Giardia spp. The overall results from our study showed that 57% of children below 5 years of age with acute diarrhea were positive for at least one infectious etiology. Diarrhoeagenic Escherichia coli was detected to be the major etiological agent (29.09%) followed by Rotavirus (24.24%), Shigella (21.21%), Adenovirus (5.45%), Cryptosporidium (2.42%), and Giardia (0.60%). Among the different DEC strains, EPEC was detected significantly higher in <2 years children in comparison to >2 years age group (p =0.001). Concurrent infections with two or more pathogens were observed in 47 of 160 (28.48%) cases with a predominant incidence particularly in <2-year-old children (66.66%) compared to children of 2 to 5 years age group. Co-infection of Rotavirus with Shigella was the most frequent combination, which was detected in 17.94% cases, followed by Rotavirus with EPEC (15.38%) and Shigella with STEC (12.82%). Detection of multiple infectious etiologies and diagnosis of the right causative agent(s) can immensely help in better management of acute childhood diarrhea. In future more studies focusing on the detection of cases with concurrent infections must be carried out, as we believe that the etiological agents might be complementing each other's strategies of pathogenesis resulting in severe diarrhea.

Keywords : children, co-infection, infectious diarrhea, Odisha

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