

Molecular Surveillance of Acute Gastroenteritis Pathogens in Kuala Lumpur, Malaysia

Chee Sian Kuan^{1*}, Poh Sim Hooi¹, Lu Mei Lee¹, Kee Peng Ng¹

¹ University of Malaya

Background/Objective

Acute gastroenteritis (AGE) is one of the leading cause of morbidity and mortality in children worldwide, especially in developing countries. In addition, AGE in adults is one of the main causes of hospitalization. Causative pathogens could not be easily identified based on symptoms alone because of infectious AGE can be caused by bacteria, viruses and parasites. Therefore, early detection of microbial etiologies of AGE was important for early therapeutic interventions and preventing further transmission. This study was conducted to determine the distribution of microbial pathogens in diarrheal patients in a tertiary hospital in Kuala Lumpur, Malaysia.

Method

A total of 98 stool samples from all patients was received at the Department of Medical Microbiology of University Malaya Medical Centre (UMMC) between November, 2014 and March 2015 were included in the study. xTAG Gastrointestinal Pathogen Panel (GPP) assay was used to simultaneous detect 15 different gastroenteritis-causing pathogens and toxins.

Result

The subjects' ages ranged from 1 to 90 years old, with children 5 year of age or younger making up 37.8% (37/98) of the study population. The positive rate of bacterial pathogens, viruses and parasites were 35.7% (35/98), 15.3% (15/98) and 2.0% (2/98), respectively. Salmonella was the predominant agent (17.3%, 17/98), followed by Clostridium difficile toxin A/B (11.2%, 11/98), Escherichia coli 0157 (10.2%, 10/98), Campylobacter (7.1%, 7/98), Norovirus GI/II (7.1%, 7/98), Rotavirus A (7.1%, 7/98), Gardia (2.0%, 2/98), adenovirus 40/41 (1.0%, 1/98) and enterotoxigenic E. coli ST and LT toxins (1.0%, 1/98). Importantly, mixed infection caused by two or three pathogens were detected in 13 samples. Most of the mixed infection was caused by Salmonella.

Conclusion

In conclusion, this study showed that viral pathogens also represents a considerable percentage of causing AGE. The implementation of the multiplex reverse transcription (RT)-PCR assay in hospital laboratories will provide rapid diagnosis of gastroenteritis-causing pathogens.