

Research Data Archive, Center for Disease Control, The Executive Yuan, R.O.C.
Readme file

Project Title: Evaluated risk factors of enteric emerging virus in the environment in Taiwan.

Project Number: DOH96-DC-2013

Executing Institute: Center for Disease Control Department of Health Taiwan

Principal Investigator(P.I.): Fang-Tzy Wu

P.I. Position Title: Associate Researcher

P.I. Institute: Center for Research and Diagnostic

Abstract:

In the United States, foodborne diseases have been estimated to cause 7.6 million illnesses each year. Around 14 million people were infected by known pathogens, 60,000 people were hospitalized and 1800 people died because foodborne diseases. Virus infection was 79% of foodborne disease, norovirus was 79.6%, rotavirus and astrovirus each was 10%. In 2004-2005 report, the epidemic season of rotavirus was from Oct to next Mar, and rotavirus positive increased 10% in Taiwan in 2006. The epidemic season of norovirus was in winter and in early spring, but in 2006 norovirus infection increased in warm season. For this reason, our study aimed to investigate surveillance of virus infection and strains variation.

Norovirus is single-stranded sense RNA virus and belongs to the family Caliciviridae. Norovirus has been divided into three major genetic groups, and genogroup I and genogroup II caused human gastroenteritis. Epidemiologic data submitted that norovirus was a major pathogen to cause adult acute gastroenteritis. Norovirus infection was 30% of foodborne disease and 79-95% of outbreaks with virus infection.

Norovirus is one of most common causes of outbreaks in elder and younger age group especially in nursing centers, hospitals and schools. The major symptoms are watery diarrhea, vomiting, abdominal pain, and fever and the disease was historically known as 'winter vomiting disease'. Symptoms of norovirus illness usually begin about 24 to 48 hours after ingestion of the virus, but they can appear 12 to 60 hours after exposure. The virus is transmitted by contaminated food especial shellfishes. The epidemiologic reports indicted that eating uncooked shellfish caused norovirus infection in Japan and France. In the present reports, norovirus is stable in the environment and is concentrate in the shellfishes. Norovirus was detected over 70% in the schools and healthcare facilities in Taiwan between 2005 and 2006. So to understand virus was transmitted and risk factors are very important.

To date, norovirus have not been cultured in vitro. For long time, electron microscopy was the mothed used most widely for detection of norovirus. Recently, commercially ELISA have been developed, but showing limited sensitivity. Nowadays, Rt-PCR and real-time PCR were usually used for researching. In our study, we establish real-time PCR and phylogenetic analysis to investigate the relation between norovirus infection and environment.

Keyword: Norovirus, acute gastroenteritis, real-time PCR, phylogenetic analysis