

## **Abstract**

**The disease acute gastroenteritis causes a big economic loss every year. The etiologic agents related to this disease are rotavirus, enteric adenovirus, calicivirus, and astrovirus. It is still unknown what is the role of these gastroenteritis viruses in Taiwan.**

**Fecal samples were collected from clinical laboratories distributed in different parts of Taiwan, from February to December of 2002. Rotavirus, astrovirus, and enteric adenovirus were detected mainly by ELISA. The samples detected as rotavirus positive were further analyzed the G and P genotypes by RT-PCR, and the electropherotypes by RNA polyacrylamide gel electrophoresis. The VP7 gene and NSP4 gene of G9 rotaviruses were sequenced and analyzed phylogenetically.**

**In the fecal samples from the patients with acute gastroenteritis, the positive detection rates in different regions for rotavirus, astrovirus, and enteric adenovirus were 13.5-24.9%, 3.6-26.2%, and 0.8-1.4%, respectively. All together, about 30-40% of these infections were related with the three different viruses. The importance of these viruses in different regions varied. Rotavirus remained to be the most important virus factor in Taipei and Hualien. Astrovirus caused more infection than rotavirus in Kaoshiung.**

**The rotavirus infections in 2002 did not show distinct seasonal distribution, though more cases were found in the cooler months. Astrovirus and adenovirus infections did not show seasonal distribution neither. About half of the rotavirus infections were from children under the age of two. In Taipei, probably because of the impact of more G9 rotavirus infections, there were more from the age group older than 5 as compared to Kaoshiung and Hualien. In the astrovirus infection, the age group distribution was different between Taipei and Kaoshiung.**

**G9 rotavirus had already disseminated in different parts of Taiwan. It contributed about 60% of the rotavirus infection in Taipei, over 30% of the infection in Kaoshiung and Hualien. G1 and G2 rotaviruses were detected in all of these regions. G3 and G4 rotaviruses were detected only in Taipei area.**

**Analysis of the G and P genotypes, and RNA electropherotypes of rotavirus samples showed that some rotaviruses had unusual combinations of G and P types or incompatible RNA electropherotypes. These rotaviruses could have been formed from genetic reassortment. We must pay attention to their contribution in rotavirus epidemics in the future. Phylogenetic analysis of VP7 and NSP4 genes showed that the major prevalent G9 rotavirus strain was a newly emerged reassortant.**

**We need to keep the study of the virological agents related to acute gastroenteritis for understanding the role of each viral agent and the changes from year to year. These information will be important for future selection or development of vaccine for our needs.**

**Keywords : acute gastroenteritis ; rotavirus ; enteric adenovirus ; calicivirus ; astrovirus ; molecular epidemiology**