Jpn. J. Infect. Dis., 59, 2006

Laboratory and Epidemiology Communications

Characteristics of Norovirus Outbreaks during a Non-Epidemic Season

Tatsuya Miyoshi, Kiyoko Uchino, Mitsuko Matsuo, Yoshiharu Ikeda, Hisayoshi Yoshida, Hisako Sibata[1], Fumitoshi Fujii[1] and Tomoyuki Tanaka*

Sakai City Institute of Public Health, Sakai 590-0953, and [1]Sakai City Public Health Center, Sakai 590-0078, Japan

Communicated by Tatsuo Miyamura

(Accepted February 13, 2006)

Norovirus (NoV) is a major cause of acute gastroenteritis worldwide and it is generally accepted that epidemics of NoV infections and outbreaks occur in winter. We report here two outbreaks of NoV infection during a non-epidemic season, between July and August 2005, in Sakai City, Osaka, Japan.

Case 1: On July 15th, 2005, a resident in a nursing home for the elderly (total number of residents: 120; staff: 100) began vomiting. Between the 15th and 23rd of July, the number of people suffering vomiting and diarrhea increased to 37 (infected residents: 21; infected staff: 16) (Fig. 1). The transmission of NoV in this case was considered to be person-to-person because no suspicious foods, such as contaminated food or shellfish, were identified. Using reverse transcriptase-polymerase chain reaction (RT-PCR), the NoV genome was detected in stool specimens from 14 of the infected residents and 2 of the infected staff members. The partial capsid gene sequence revealed identical sequences, and phylogenetic analysis classified the virus as genogroup II, genotype 1 (GII/

*Corresponding author: Mailing address: Sakai City Institute of Public Health, Kaicho Higashi 3-2-8, Sakai 590-0953, Japan. E-mail: tanaka-tom@city.sakai.osaka.jp

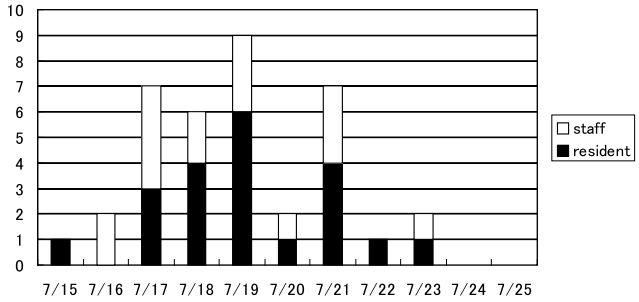

Fig. 1. Daily incidence of patients in Case 1, a nursing home for the elderly. The total number of daily cases does not show a sharp pattern, but rather a dull one with a tailing pattern.

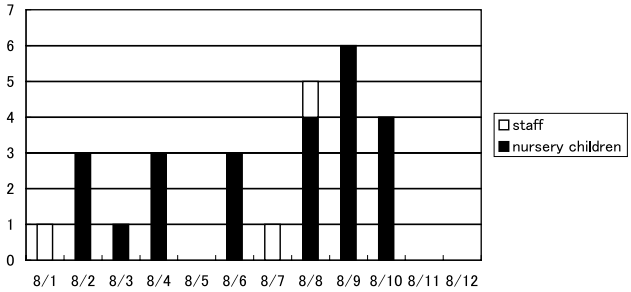

Fig. 2. Daily incidence of patients in Case 2, a nursery school, showing multiple peaks, which is a the characteristic NoV infection pattern in non-epidemic season.

1) (1).

Case 2: On August 2nd, 2005, 3 children under 5 years of age and 1 staff member at a nursery school (total number of children: 146; staff: 35) experienced vomiting and diarrhea. Between the 6th and 12th of August, 17 more children and 2 more staff members suffered the same symptoms (Fig. 2). The transmission of NoV was considered to have occured by person-to-person contact. The NoV genome was detected in stool specimens from 4 children and 1 staff member by RT-PCR; the virus was classified as belonging to genogroup II, genotype 6 (GII/6) (1).

The genotypes detected in Cases 1 and 2 were GII/1 and GII/6, respectively, both of which were different from genotype GII/4 which had been prevalent in the preceding winter season. We are also examining an outbreak of both NoV GI/4 and GII/6 which occurred in a nursery in Sakai City in May 2005 (submitted for publication). These data suggest that several different genotypes were co-circulating in the summer season in this area.

We did not observe any peak of infection in these two cases. We did, however, observe that most of the patients showed only mild symptoms which included vomiting and diarrhea once or twice per day, but recovered quickly. Based on these clinical signs, it was difficult to arrive at a precise diagnosis of NoV infection because in summer, these symptoms are commonly regarded as “summer cramp” or “summer stress”. However, we suspect that these symptoms are likely to be manifestations of NoV infections. Therefore, it is important to screen for NoV during the non-epidemic season using RT-PCR or antigen enzyme-linked immunosorbent assay (ELISA) (2) in order to prevent the spread of NoV.

This article was published in the Infectious Agents Surveillance Report (IASR), vol. 26, p.19-20, 2005 in Japanese.

REFERENCES

1. Katayama, K. (2002): Phylogenetic analysis of the complete genome of 18 Norwalk-like viruses. Virology, 299, 225-239.
2. Tanaka, T. (2003): Evaluation of *Norovirus* antigen detection ELISA kit. Jpn. J. Med. Pharm. Sci., 50, 709-714 (in Japanese).