

National Surveillance for Rotavirus Infections in Korea

Incidence and Distribution of Genotypes of Group A rotavirus

Doosung Cheon
Div. of Enteroviruses, Dept. of Virology, NIH

Abstract

Group A Human rotavirus (HRV) is the major causative agent of severe dehydrating gastroenteritis in infants and young children worldwide. Rotaviruses are members of the *Reoviridae* family and contain a genome consisting of 11 segments of double stranded RNA (ds RNA) packed in a triple layered shell (outer capsid, inner capsid and core). Outer capsid of rotavirus is composed of two proteins, P protein (VP4) and G protein (VP7), encoded by gene segment 4 and 9 respectively. These two outer capsid proteins are inducing production of neutralizing antibodies and form a basis of classification of group A rotaviruses.

For the surveillance for group A rotavirus infections in Korea, we set up the national surveillance network by incorporating with fifteen laboratories in regional institute of health and environment. Each regional laboratory also makes regional surveillance network by co-working regional hospitals. Antigen capturing ELISA was used in screening Group A HRV for stool specimen obtained from patients with acute gastroenteritis from 2000 to 2002. Subsequently we performed nested RT PCR using rotavirus positive samples, which confirmed as antigen capture ELISA, for determining G and P genotypes in order to survey prevalence of genotypes of Group A HRV in Korea.

As a result, totally 91 out of 2286 were determined as HRV positive in 2000, 1959 out of 15004 were in 2001, and 2322 out of 18201 were in 2002 respectively. This investigation revealed that endemic season of HRV infections in our country was from late autumn to late spring in our country. In general, the predominant genotypes were confirmed as P1B[4]/G2, followed by P1A[8]/G1, P1B[4]/G1, P2A[6]2/G4, and P1A[8]/G4 while as there was endemics by genotype P2A[6]/G4 HRV infections in Seoul, Inchoen, Kyounggi region during 2001-2002 season.

This study is first nationwide surveillance for rotavirus infections and genoepidemiological study for surveying the prevalence of genotypes in Korea, which give useful information for establishment of strategy of preventing human rotavirus and introducing new developed vaccine and developing vaccine suitable for our country.

Keywords: Group A human rotavirus, Nationwide surveillance, P and G genotype, Genoepidemiological study

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Figures & Tables

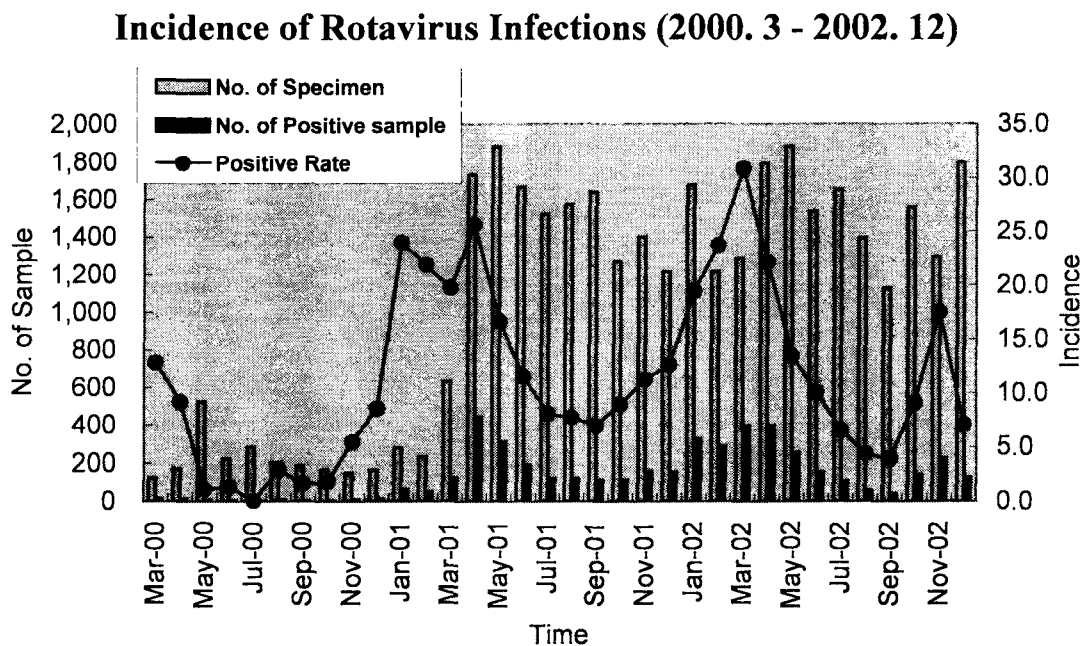


Figure 1. The Incidence of Group A Rotavirus Infections in Korea during 2000 – 2002

The distribution of genotypes of Group A Rotavirus

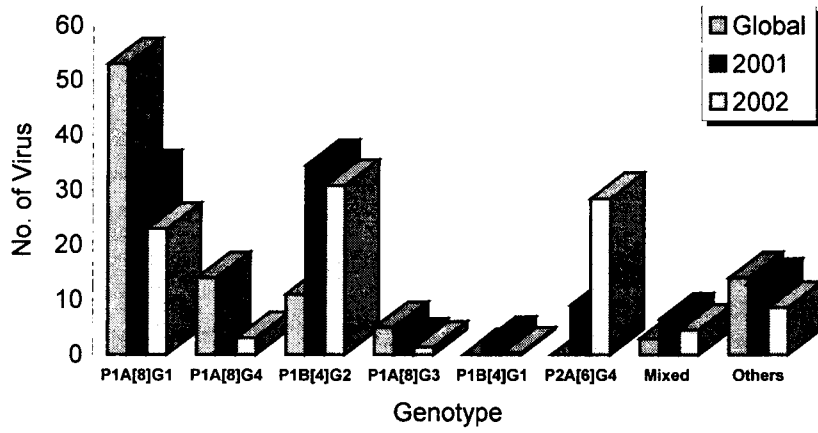


Figure 2. The distribution of genotypes of Group A rotavirus in Korea