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Specific properties of enteropathogenic *Escherichia coli* strains isolated from diarrheal patients: Comparison with the strains from foods and fecal specimens of cattle, pigs, healthy carriers in Osaka City, Japan

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For exhaustive detection of diarrheagenic *Escherichia coli*, we previously developed a colony-hybridization method using hydrophobic grid-membrane filters in combination with multiplex real-time PCR. To assess the role of domestic animals as the source of atypical enteropathogenic *E. coli* (aEPEC), a total of 679 samples (333 foods, fecal samples from 227 domestic animals and 119 healthy people) were examined. Combining 48 strains previously isolated from patients and carriers, 159 aEPEC strains were classified by phylogroup, virulence profile and intimin typing. Phylogroup B1 was significantly prevalent among aEPEC from patients (50%) and bovine samples (79%) when compared with healthy carriers (16%) and swine strains (23%), respectively. Intimin type β 1 was predominant in phylogroup B1; B1- β 1 strains comprised 26% of bovine strains and 25% of patient strains. The virulence profile groups Ia and Ib were also observed more frequently among bovine strains than among porcine strains. Similarly, virulence group Ia was detected more frequently among patient strains than strains of healthy carriers. A total of 85 strains belonged to virulence group I and 63 of these strains (74%) belonged to phylogroup B1. The present study suggests that the etiologically important aEPEC in diarrheal patients could be distinguished from aEPEC strains indigenous to humans based on type, such as B1, Ia and β 1/ γ 1, which are shared with bovine strains, while the aEPEC strains in healthy humans are different, and some of these were also present in porcine samples.

Biography

Yoshikazu Nishikawa got Ph.D. from Osaka Prefecture University in 1984. He had worked as an inspector of foodborne infectious outbreaks for 14 years at Osaka City Institute of Public Health and Environmental Sciences, afterward he got the position in The Osaka City University in 1999 and is now the vice dean of the Graduate School of Human Life Science. He has published more than 60 original articles in reputed journals and serving as an editorial board member of two international journals and one domestic journal, and as a councilor of four scientific societies in the field of bacteriology.

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