Age-specific clinical features of norovirus gastroenteritis associated with foodborne outbreaks in elder-care facilities.

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Background
It is known that gastroenteritis caused by noroviruses is likely to be severe among the elderly. However, the age-specific clinical features remain unclear. We conducted an epidemiological study on foodborne norovirus outbreaks in elder-care facilities.

Objectives
To assess the age-specific clinical features of norovirus gastroenteritis.

Methods
Epidemiological and clinical information about the foodborne outbreaks which occurred between 2007 and 2011 in elder-care facilities in Tokyo was collected from the national reporting system for food-poisoning cases and the investigative reports made by the local health centers. We collected information about patients of residents and staff members, and compared symptoms by age groups classified in every 10 years old. The age-related differences in the clinical features were evaluated by the Cochran-Armitage trend test.

Results
Eight foodborne norovirus outbreaks were reported during the study period. The mean attack rate was 26.6% in the residents (age range: 44-103 years) and 27.0% in the staff members (age range: 22-63 years) who took contaminated foods provided in each facility. The overall incidence of vomiting (once or more per day), diarrhea (three or more times per day), and fever (more than 37.5°C) was 65.6%, 13.8%, and 17.8%, respectively. Vomiting was the most common symptom in all age groups and significantly more common in older age groups (p = 0.0031) (Fig. 1). Diarrhea and fever tended to be significantly less common in older age groups (p = 0.0014 and p = 0.0068, respectively) (Fig. 2, 3).

Conclusion
Although the most common symptom among patients of foodborne norovirus gastroenteritis was vomiting, it occurred significantly less frequently in younger persons. Meanwhile older persons were significantly less likely to present with diarrhea and fever. Thus, it is necessary to introduce active case finding and measures to further spread of the infection in foodborne outbreak settings in consideration of the age-specific clinical features of norovirus gastroenteritis.