ABSTRACT

Background: A preseasonal outbreak of influenza-like illness was reported in a tourist group that had returned from Ireland to the United States on October 1 and 2, 1999. The authors investigated to determine the timing, extent, and nature of the outbreak.

Methods: A cohort study was conducted among the entire group. Cases were defined as illness occurring among tour members who experienced cough or sore throat with onset from September 29 through October 5. Nasopharyngeal and throat cultures were examined for respiratory viruses.

Results: Eighteen (60%) of the 30 tourists were ill; the majority (66%) of cases had onset of illness within 1 day of departure from Ireland. Human parainfluenza virus type 1 was isolated from six cultures, and influenza B from three. The attack rate was 100% among the eight persons 65 years of age or older versus 45% among the 22 persons younger than 65 years (P = 0.01).

Conclusion: International travelers, particularly older persons and members of organized tour groups, may experience increased risks for respiratory viral infection. The recognition and containment of imported infectious diseases depend on prompt reporting and epidemiologic investigation.

Key Words: communicable disease control, disease outbreaks, influenza B virus, parainfluenza virus 1, travel


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Cases were defined as illness occurring among tour members who experienced cough or sore throat with onset from September 29 through October 5. The majority (66%) of the 18 cases had onset within 1 day of their departure from Ireland (Figure 1). The attack rate was 100% among the eight persons aged 65 years of age or older but only 45% among the 22 persons younger than 65 years (2-sided Fisher’s exact test; P = 0.01). The median duration of illness was 13 days (range, 5–32 d). The predominant symptoms included cough (78%), fatigue (72%), sore throat (67%), myalgia (67%), hoarseness (61%), and fever (56%). Although no hospitalizations or deaths occurred, medical care was sought by 39% of the ill tourists. Follow-up interviews revealed no evidence of secondary spread to household contacts or the surrounding community.

Specimens were obtained on October 6 from 13 of the 18 ill tour members. Two different respiratory pathogens were identified: influenza B virus was detected in three patients, whereas HPIV-1 was detected in six others. Diagnostic confirmation was performed at the Centers for Disease Control and Prevention (CDC). Isolates of HPIV-1 were confirmed by reverse transcriptase polymerase chain reaction or cell culture plus IFA. The influenza B isolates were characterized as Beijing/184/93-like by hemagglutination-inhibition and postinfection ferret antisera. The duration of illness and symptoms experienced by ill tour members with and without culture-confirmed influenza B and HPIV-1 infections were similar (Table 1). None of the tourists had received the 1999-2000 influenza vaccine before the trip, and influenza vaccination status for the previous season was not determined.

No common return flight was shared by individuals with either confirmed influenza B or HPIV-1, and attack rates were similar when the tour members were stratified according to their overseas flights (Data not shown; chi-square, P = 0.38). The illnesses observed in the tourists could not be related to any specific exposures during the tour. The tour group did have numerous opportunities inside closed environments (e.g., pubs, restaurants, and cabarets) for potential exposure to locally circulating viruses. However, public health surveillance in Ireland had not detected any influenza B or HPIV-1 activity during September and October 1999 (Igoe D. Personal communication). However, the lack of an association with the return flights, the timing of the illnesses, and consideration of the incubation periods suggest that the infections were acquired while the group was in Ireland.

**DISCUSSION**

This investigation documented a mixed outbreak of parainfluenza type 1 and influenza B imported into the United States via international air travel. Surprisingly, documentation of the spread of common respiratory viruses by international flights is scant, which may reflect the ubiquitous nature of these infections.

The potential role of air travel in the spread of respiratory illness was highlighted by the presence of ill tourists returning on several different overseas flights and the tourists’ subsequent dispersal through the eastern United States. In this instance, further transmission in the United States was evidently avoided. The illnesses in the returning tourists represented the first cases of influenza B of the 1999–2000 influenza season in the United States. Influenza B was only a minor contributor to the overall influenza burden during the 1999–2000 influenza season.

This outbreak qualified as an interseasonal influenza outbreak as it occurred at the cusp of a new influenza season in the northern hemisphere, before the availability of the 1999–2000 influenza vaccine. In general, interseasonal exposure to influenza may occur during
international travel, particularly in association with large tour groups. Vaccination and other measures to reduce influenza risks ought to be considered for international travellers at high risk for complications from infection, such as persons over the age of 50 years.

The documented introduction of HPIV-1 was unique. Without a timely and assertive approach to viral diagnostics, the mixed character of this outbreak, which was not evident from the presentation of illness, could easily have been missed. The occurrence of this outbreak was consistent with the biennial autumnal peak in HPIV-1 activity, currently observed in odd-numbered calendar years. Most often, HPIV-1 infections are recognized in young children; repeated infections, typically characterized by upper respiratory symptoms, are possible throughout life. Respiratory infections caused by different common viruses in healthy older adults often are clinically indistinguishable and, aside from influenza, little is known about their associated morbidity in this population. The outbreak reported here was notable for the moderately severe HPIV-1 infections that occurred among healthy older adults. The findings support the thesis that parainfluenza viruses may be important respiratory pathogens among older adults, causing illness similar to influenza.

Physicians and public health authorities need to be cognizant of the role of international travel in the importation of communicable diseases. Whereas the outbreak reported here did not result in the further spread of disease upon the tourists’ return, the prompt reporting and epidemiologic response successfully characterized the outbreak. This capacity for recognition and containment is an important component of strategies to counter the potential effects of imported infections.

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