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Travel patterns and health risks for patients infected with HIV

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Summary International travelers are at increased risk of acquiring infectious diseases. These risks are even greater for individuals visiting resource-poor tropical regions and for immunocompromised travelers, including those with HIV infection. We reviewed ten years of consultative charts from the International Health Clinic at the Ottawa Hospital General Campus to describe travel risks and preventative measures for international travelers infected with HIV. A total of 100 patients infected with HIV (63 male, 37 female; mean age 42.2 years) were referred to the clinic prior to international travel. More than half (57%) were born in countries endemic for tropical diseases. Overall the median HIV viral load (VL) was <50 copies/ml (i.e. undetectable) and the median CD4 count was 440 cells/μL (IQR = 285–630). The most common destination regions were sub-Saharan Africa (55 patients) and the Caribbean (14 patients). Endemic-born patients took longer trips than Canadian-born travelers (mean 45.2 vs. 22.7 days, $p < 0.05$), were more likely to travel to visit friends and relatives (80.7% vs. 4.7%, $p < 0.05$), and frequented regions with higher risks of malaria and other infectious tropical diseases. Endemic-born travelers infected with HIV stay abroad longer and are more likely to visit malarious regions than their Canadian-born counterparts. More research is needed to ensure the best preventive care of these special needs travelers.

Introduction

International travelers are at increased risk of acquiring infectious diseases.[1] These risks are even greater for individuals visiting resource-poor tropical regions, including immigrants returning to their home countries to visit friends and relatives,[2,3] and for immunocompromised travelers.[4] Highly active antiretroviral therapy has enabled patients infected with HIV to travel internationally,[5] yet few studies have documented the travel-related health risks experienced by patients born in, and likely returning to, countries endemic for tropical diseases. The travel health considerations for these patients are manifold.

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Travelers and their health care providers must anticipate the potential for immunocompromise in high-risk tropical regions, the possibility of drug interactions, particularly between malaria prophylaxis and antiretroviral protease inhibitors (PIs) and non-nucleoside reverse transcriptase inhibitors (NNRTIs),[6] and the need to balance risks and benefits of live vaccines.[7,8] There is a clear need to understand health risks experienced abroad by patients infected with HIV, especially for high-risk travelers visiting friends and relatives (VFR) in countries endemic for tropical disease, but little is known about the travel risks or preventive measures in these populations.

The purpose of our study was to define the travel destinations and travel risks experienced by patients infected with HIV, to compare travel risks experienced by Canadian-born and endemic-born patients, and to describe preventive measures taken to reduce travel risks.

Materials and methods

We performed a retrospective cross-sectional study of travel medicine consultative charts for patients infected with HIV referred to the International Health Clinic at the Ottawa Hospital General Campus between June 14, 1997 and June 15, 2007. Chart data were obtained for all patients with HIV infection who consulted the International Health Clinic prior to traveling abroad. The organization of patient services at the Ottawa Hospital General Campus provides a good opportunity to study HIV infection and travel because the international health clinic is collocated with a unit providing HIV-related care. Patients infected with HIV are therefore likely to receive travel medicine referrals because clinical staff routinely elicit international travel plans and can arrange for immediate consultations, if required. Demographic information, immunization history, HIV infection management and pertinent medical history were obtained from patient charts. We classified patients as ''endemic-born'' if infectious travel-related diseases were endemic to their country of origin;[1,3,9,10] other patients were considered ''Canadian-born.'' Potential exposure to infectious tropical disease was based on a detailed risk assessment of the planned itinerary by a travel medicine specialist at the clinic. Travel data were collected prospectively by nursing staff using a standard questionnaire to elicit information about destination, date of departure, length of stay, itinerary, purpose of travel, type of accommodation and potential exposure to malaria, typhoid, meningitis and yellow fever.[3,9,10] Additional details about travel risks and appropriate disease prophylaxis were also recorded by a travel medicine physician during the pre-departure consultation at the clinic. Income data were approximated by linking primary residence postal codes to Canadian census data. We matched the forward sortation area and local delivery unit information from postal codes to median individual employment income reported for the 2001 Canadian census. Statistical differences between groups were evaluated using standard parametric and nonparametric statistical tests. We used the χ^2 test to compare categorical variables and the Student's t test to compare continuous variables. Statistical differences with a p-value <0.05 were considered significant. Travel data refer to patients' first consultation at the International Health Clinic. Unless otherwise specified, each patient was included only once. HIV viral load (VL) values <50 copies/ml (i.e. undetectable) were recorded as ''49'' for statistical purposes. The Ottawa Health Research Ethics Board granted ethics approval for the study (protocol #2007317-01H). All analyses were performed using SAS version 9.1 for Windows.

Results

Demographics

The International Health Clinic provided travel medicine services to 1844 different patients during the period from June 14, 1997 to June 15, 2007. We identified 100 patients infected with HIV (63 male and 37 female) who consulted the clinic prior to international travel (see Table 1). The mean age at first consultation was 42.2 years (SD = 11.1) and the median income was $26,782. More than half (57%) the patients were born in countries endemic for tropical diseases. Their region of birth was sub-Saharan Africa (48), the Caribbean (5), South Asia (3) and South East Asia (1). The remaining 43 patients were born in Canada (34), Western Europe (5), the United States of America (3), and New Zealand (1); all of these patients were classified as ''Canadian-born.'' The median HIV viral load for all patients was 49 copies/ml with a maximum VL of 150 000 copies/ml and an interquartile range (IQR) of 49–122 copies/ml. The median CD4 count was 440 cells/μL (IQR = 285–630) and 11 patients had a CD4 count below 200 cells/μL. The CD4 counts and VLs for Canadian-born and endemic-born patients were not statistically different. Fifty-eight patients were on an HIV regimen, either PIs, NNRTIs or both, with a significant potential for interaction with malaria chemoprophylaxis.

Travel destinations and risks

Sub-Saharan Africa was the most common destination region and 87% of these travelers were endemic-born patients. A breakdown of travel destinations by country of origin is shown in Table 2. Of the 64 patients planning to visit a malaria-endemic country, 37 (58%) were taking protease inhibitors. Of the immunocompromised patients with CD4 counts below 200 cells/μL, only the endemic-born individuals (5) planned to travel to malarious regions. Overall, 96% of endemic-born patients were at risk of being exposed to either malaria, meningitis or yellow fever, whereas 44% of Canadian-born patients were at risk for at least one of these infectious diseases. Nineteen patients traveled internationally more than once. The destination regions for these trips were sub-Saharan Africa (48%), Central America (24%), the Caribbean (8%), South East Asia (8%), East Asia (4%), South America (4%) and South Asia (4%).

Preventive measures

On average, endemic-born and Canadian-born patients consulted the international travel clinic less than 4 weeks