Abstract

Background:

Risk factors for influenza hospitalization in Africa are unknown, including the role of HIV.

Methods:

We conducted a case-control study of risk factors for hospitalized seasonal influenza among persons in rural western Kenya, a high HIV prevalence area, from March 2006- August 2008. Eligible cases were $five years old, admitted to health facilities with respiratory symptoms, and had nasopharyngeal/oropharyngeal swab specimens that tested positive for influenza A or B by real-time reverse transcription-PCR. Three randomly selected age-, sex- and neighborhood-matched controls were enrolled per case. A structured questionnaire was administered and home-based HIV testing was performed. Risk factors were evaluated using conditional logistic regression.

Results:

A total of 64 cases (38 with influenza A and 26 with influenza B) and 190 controls were enrolled. The median age was 16 years (range 5–69 years). Among cases, 24.5% were HIV-infected versus 12.5% of controls ($p = 0.004$). Among persons $18 years old, 13 (59%) of 22 tested cases were HIV-positive compared with 15 (24%) of 62 tested controls ($p = 0.005$). In multivariable analysis, HIV-infection was associated with hospitalization due to influenza [adjusted Odds Ratio (aOR) 3.56, 95% CI 1.25–10.1]. The mean CD4 count among HIV-infected cases and controls was similar (399 vs. 387, respectively, $p = 0.89$). Chronic lung disease (aOR 6.83, 95% CI 1.37–34.0) was also associated with influenza hospitalization in multivariable analysis. Active pulmonary tuberculosis was associated with influenza hospitalization in bivariate, but not multivariable, analysis.

Conclusions:

People with HIV infection and chronic lung disease were at increased risk of hospitalized influenza in rural Kenya. HIV infection is common in many parts of sub-Saharan Africa. Influenza vaccine might prevent severe influenza in these risk groups.