

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 \geq 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 \geq 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.