

Epidemiology of Tuberculosis in the Haitian Population in South Florida

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Background

Research has shown that there is a disproportionate load of tuberculosis (TB) in foreign-born immigrants. Ninety-five percent of TB deaths come from low-income and middle-income countries, Haiti being one of them. According to the WHO, in 2012, Haiti had a TB incidence of 213/100,000 and prevalence of 296/100,000. Also, in 2012, a total of 2.2% of new TB cases and 14.0% of previously treated TB cases were multidrug-resistant TB (MDR-TB). This is an issue for the US because it is a hub for foreign-born immigrants, and especially an issue for Florida because 37.1% of all documented Haitian immigrants move to South Florida.

Aims

There are two aims for this project: identify characteristics comparing the Haitian TB population versus the non-Haitian TB population, and identify associations between the outcome of cavitary TB and being from Haiti.

Methods

The source of data was the CDC Report of Verified Cases of Tuberculosis, obtained from the Florida Department of Health. It included Florida TB patients from 1993 to 2008, with an initial size of 21,795 individuals. The sample only included five counties from South Florida: Miami-Dade, Broward, Collier, Monroe, and Palm Beach, ending with a sample size of 8,470.

Aim 1- Ran univariate analysis to find significant variables as well as distributions of each of the variables, for both the Haitian and non-Haitian TB populations.

Aim 2- Ran multivariate analysis to find associations between predictor (being from Haiti) and outcome (cavitary TB). Modeling was done using backward elimination.

Results

Aim 1- Haitian TB patients tend to be: young, male, alive at diagnosis of TB, not diagnosed with previous TB, have pulmonary TB, have negative sputum smears, have positive sputum cultures, have positive TB skin tests, have abnormal x-rays, have noncavitary TB disease, be HIV positive, not homeless, not be residents of correctional facilities, not be residents of long-term care facilities, not injection-drug users, not non-injection drug users, not excessive alcohol users, and do not have MDR TB.

Aim 2- Haitian TB patients who: were HIV positive were 75% less likely to have cavitary TB disease, were residents of correctional facilities were 25% less likely to have cavitary TB disease, were residents of long-term care facilities were 45% less likely to have cavitary TB disease, and excessively used alcohol were 33% more likely to have cavitary TB disease.

The final model showed that age group, HIV status, resident of correctional facility, resident of long-term care facility, and excess alcohol use, were associated with being from Haiti and cavitary disease. Sex was kept in the final model.

Conclusions

Both aims were met. Surprisingly, both aims showed that MDR TB was not significant or associated; however, this may be due to the missing values.

Aim 1- The Haitian TB population tended to younger and male: Haitians that migrate to the US are those in their prime, productive years and are the bread winners of the family. The Haitian TB population tended to be HIV positive: consistent with previous literature, due to large HIV burden in Haiti.

Aim 2- For HIV positive Haitian TB patients, the less likelihood of cavitary TB: their weak immune systems prevent formation of cavities. For not being in correctional or long-term care facilities: in line with previous literature because TB is regularly monitored in these facilities. For excessive alcohol use: attributable to failure of treatment. Studies show that excessive alcohol use is associated with less likelihood of completion of treatment.