Epidemiology of Tuberculosis: Informing future preventative strategies

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INTRODUCTION

- Tuberculosis (TB) is an airborne transmissible infectious disease caused by Mycobacterium tuberculosis, and is known as an urban disease in developed countries.
- The incidence of TB cases in Ontario has consistently exceeded the national average of 4.7 with 5.3 cases per 100,000 population in 2007.
- Foreign-born population represents 85% of cases in Ontario, despite the fact that it only represents ¼ of the general population.
- Majority of cases of active TB are seen in aging populations (>65 years old).
- Pulmonary TB was the most frequent reported diagnostic site (70%) in Canada in 2004.
- The present study examined local demographic and diagnostic trends.

METHODS

- Of all the patients over the age of 18 who presented at the Infectious Disease Clinic with active TB and were diagnosed and treated in Ottawa between 2005 and 2007, 39 were randomly selected.
- A systematic chart review was performed to extract demographic, diagnostic and treatment information.

RESULTS

- 56.4% female and 43.6% male
- 87.2% were foreign-born
- Of those who were foreign-born, the median time between their arrival to diagnosis with active TB was 10.5 years, and 1/3 of them were diagnosed with active TB within 5 years of their arrival to Canada.
- The median length between initial symptoms and their first visit, as reported by the patient, was 6 weeks (mean ± SD = 8.6 ± 2).
- HIV status was reported in 66.7% of cases studied
- Among the 36 individuals for which use of directly observed therapy (DOT) was specified, 86.1% of individuals were placed on DOT during the course of treatment.

DISCUSSION

- Our results show that:
  - Foreign burden was concordant with the provincial average of 85% between 1998-2007, though much higher than the national average of 67% in 2004.
  - The rates of TB is highest among populations originating from Africa and Asia, mirroring previous findings.
- Our results further illustrate:
  - The increase in the rate of immigrants coming from countries with higher rates of TB.
  - That immigrants remain at high risk for TB even a decade or more after their arrival.
  - The low efficacy of medical surveillance and screening programs in detecting TB. New screening measures should be considered.
  - An improvement in documentation of HIV and use of DOT in Ottawa was observed in the 2005-2007 period studied, compared to findings by Kim et al. (2008).
  - Patients with HIV are at higher risk of developing TB and in turn, TB is a leading cause of morbidity and mortality among HIV patients.
  - Directly observed therapy (DOT) allows for a reduced rate of drug resistance and relapse.
  - In future studies, a greater sample size would be needed to further evaluate trends observed in age groups affected as well as, anatomic site of disease, especially across a greater number of years.
  - Associations with time to diagnosis since arrival to Canada are worth exploring as well as, identifying factors contributing to diagnostic delay.

REFERENCES


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