Trends in Antimicrobial Susceptibility among Invasive Isolates of Streptococcus pneumoniae in Canada from 2011 to 2015: The SAVE Study

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ABSTRACT

BACKGROUND

Invasive pneumococcal infections continue to occur despite the use of pneumococcal vaccines. Current and historical antimicrobial susceptibility testing data is important to clinicians, antimicrobial stewardship programs, infection control practitioners, and public health agencies in monitoring the continued use of the key public health investment in Canada, the pneumococcal conjugate vaccine. The SAVE (Streptococcus pneumoniae Antimicrobial Susceptibility Evaluation) Study was conducted from 2011 to 2015. The SAVE study was a comprehensive, collaborative, multi-disciplinary study to evaluate the susceptibility of invasive isolates of S. pneumoniae in Canada from 2011 to 2015. The SAVE Study was an annual, national surveillance program that collected and tabulated susceptibility testing data from a broad range of clinical and public health laboratories across Canada. From 2011 to 2015, 51% of provinces submitted isolates and 51% of laboratories participated in the study. This study provides susceptibility testing data for S. pneumoniae cultured from Canadian patients from 2011 to 2015 (cumulative data across provinces).

MATERIALS & METHODS

Methods: The SAVE Study is an annual, national surveillance program that collects and tabulates susceptibility testing data from a broad range of clinical and public health laboratories across Canada. From 2011 to 2015, the SAVE Study collected all 2,627 invasive isolates of S. pneumoniae annual isolates (and seven) that were 1,279 (2011), 1,263 (2012), 1,126 (2013), 1,210 (2014), and 1,105 (2015). Isolates were tested against a panel of antimicrobial agents using the CLSI disk diffusion methodology or the CLSI microdilution methodology. Annual antimicrobial susceptibility rates for each antimicrobial agent were assessed using Pearson’s chi-square test with a confidence interval of 95%.

RESULTS

Bacterial isolates. From January 1st to December 31st, 5,202 S. pneumoniae isolated from sterile body fluids (1,279 in 2011, 1,263 in 2012, 1,126 in 2013, 1,210 in 2014, and 1,105 in 2015) were analyzed for antimicrobial susceptibility using the CLSI disk diffusion methodology. Although the annual number of isolates may vary, the proportion of pneumococcal isolates included in the SAVE study remained relatively constant from 2011 to 2015.

Antibiotic resistance. Antibiotic resistance was defined using previously published susceptibility breakpoints for S. pneumoniae. Resistance rates were determined using Pearson’s chi-square test with a confidence interval of 95%.

Statistical analysis. Annual antimicrobial susceptibility rates for each antimicrobial agent were assessed using Pearson’s chi-square test with a confidence interval of 95%.

REFERENCES