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ABSTRACT

Background: Emerging non-PCV13 SPN serotypes 22F and 33F are included in a new 15-valent pneumococcal conjugate vaccine currently undergoing clinical trials in the United States. The goal of this study was to characterize invasive pneumococcal disease (IPD) caused by serotypes 22F and 33F in Canada using a comprehensive strain collection.

Methods: In collaboration between CARA and NML, 519 SPN isolates causing invasive pneumococcal disease were collected from across Canada, 2011-2014. Serotyping was performed by the ACMI SPN typing scheme. The IPD due to serotypes 22F and 33F were compared to IPD due to non-PCV13 serotypes.

RESULTS

Isolate Collection: 33F invasive S. pneumoniae isolated from sterile sites were forwarded from Canadian Public Health Laboratories to the National Microbiology Laboratory.

Antimicrobial susceptibility testing was performed using defined methods and interpreted according to Clinical and Laboratory Standards Institute (CLSI) guidelines. Quality control was performed using S. pneumoniae ATCC 49619 and S. pneumoniae ATCC 49615 cultures. MICs for amoxicillin, amoxicillin-clavulanic acid, ceftriaxone, cefuroxime, ciprofloxacin, erythromycin, penicillin G, tetracycline, and vancomycin were determined.

Characterization of Serotypes 22F and 33F: The 22F isolates were analyzed for a nitroreductase (NTR) gene by polymerase chain reaction using published primers. The 33F isolates were analyzed for the presence of the siai and siaj genes by PCR.

CONCLUSIONS

Serotype 22F IPD is associated with increased hospitalization and mortality compared to serotype 33F IPD. Future studies should focus on determining the potential impact of the recently introduced 15-valent conjugate vaccine on these serotypes.

REFERENCES


ICD-10 codes: B01.2, A35.0, A49.0, B49.0, B99.7, A01.3, B01.4

MATERIALS & METHODS

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