Lefamulin, a novel oral and IV pleuromutilin, was approved by the FDA in August 2019 for the treatment of community-acquired bacterial pneumonia (CABP) and is awaiting approval by Health Canada. Lefamulin has demonstrated activity versus both typical and atypical respiratory pathogens known to cause CABP (1).

This study assessed the in vitro activity of lefamulin versus Streptococcus pneumoniae (SPN) respiratory and blood isolates obtained across Canada by the CANWARD surveillance study from 2015 to 2018.

Materials and Methods

The CANWARD study is an ongoing, national, Canadian Antimicrobial Resistance Alliance (CARA) / Health Canada-partnered surveillance study assessing the pathogens causing infections in patients seeking care in tertiary care medical centres across Canada, as well as their susceptibilities to commonly prescribed and newer antimicrobial agents (2). In this study, only common community-acquired respiratory pathogens such as Streptococcus pneumoniae were studied. Specifically a total of 482 S. pneumoniae (315 respiratory isolates and 167 blood isolates) were studied which were obtained from CANWARD 2015-2018 (2).

Antimicrobial susceptibility testing was performed using the CLSI broth microdilution method (2019) (2). MICs were determined using 96-well custom designed microdilution plates made in-house by our laboratory. Lefamulin MICs were interpreted using FDA interpretive criteria (https://www.fda.gov/drugs/development-resources). S. pneumoniae ≤0.5 µg/ml susceptible and MICs to other agents were interpreted using the CLSI M100 criteria (29th Edition, 2019). Multidrug resistance (MDR) was defined as resistant to penicillin and clarithromycin and trimethoprim-sulfamethoxazole (SXT).

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Table 1. In vitro activity of lefamulin versus 482 S. pneumoniae resistance phenotypes along with select comparators

Table 2. In vitro activity of lefamulin versus 315 respiratory S. pneumoniae resistance phenotypes along with select comparators

Table 3. In vitro activity of lefamulin versus 167 blood S. pneumoniae resistance phenotypes along with select comparators

Table 4. In vitro activity of lefamulin versus 315 respiratory S. pneumoniae with various resistance phenotypes

Table 5. In vitro activity of lefamulin versus 167 blood S. pneumoniae with various resistance phenotypes

Conclusions

The participating CANWARD 2015-2018 sites (investigators) are: Royal University Hospital, Saskatoon, SK (Dr. J. Bouchard); Children’s Hospital of Eastern Ontario, Ottawa, ON (Dr. R. Slinger); Queen Elizabeth II Health Sciences Centre, Halifax, NS (Dr. R. Davidson); Health Sciences Centre, Winnipeg, MB (Dr. G. Zhanal / Dr. H. Adam); London Health Sciences Centre, London, ON (Dr. J. Delport); The Moncton Hospital, Moncton, NB (Dr. C. Ellis); Jeeves General Hospital, Montreal, QC (Dr. K. Weiss); Mount Sinai Hospital University Health Network, Toronto, ON (Dr. S. Poulios); University of Alberta Hospital, Edmonton, AB (Dr. T. Dingel); Vancouver Hospital, Vancouver, BC (Dr. M. Charles); The Ottawa Hospital, Ottawa, ON (Dr. M. Desjardins); CHRTIR Pavilion Ste. Marie, Trois-Rivières, QC (Dr. M. Guéyette); Hamilton Health Sciences Centre, Hamilton, ON (Dr. D. Yamando); CAMH, Toronto, ON (Dr. S. Desai); Sherbrooke, Sherbrooke, QC (Dr. A. Carignan); Cité de la santé, Laval, QC (Dr. M. Bergeron); and L’Hôtel-Dieu de Québec, Québec City, QC (Dr. R. Paillotin).

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References