Usage Patterns of Intravenous Ceftolozane-Tazobactam in Canada: Preliminary Results of the CLEAR (Canadian LEOadship on Antimicrobial Real-life Usage) Registry

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Introduction

New IV antimicrobials, such as ceftolozane/tazobactam and ceftepime, have recently become available to clinicians across Canada, IV fosfomycin, IV lefamulin and other new IV antimicrobials will soon also become available in Canada. It is expected that the majority of the usage of these new IV antimicrobials is and will be by infectious diseases/medical microbiology practitioners. In addition, it is expected that usage will be limited initially to select patients and expand over time, as has occurred with other new antibiotics that were previously introduced in Canada (eg. daptomycin and fidaxomicin). As well, it is expected that usage will not be limited to the current Health Canada approved indications but may also be used for potential future indications (e.g. off label) based on the clinical judgment of treating clinicians.

The CLEAR registry is an initiative by the Canadian Antimicrobial Resistance Alliance (CARA). CLEAR is a new, national usage registry platform that enables the accumulation of knowledge regarding the clinical usage of IV ceftolozane/tazobactam and ceftepime across Canada. Once other new IV antimicrobials receive Health Canada approval, more questionnaires will come online.

Materials and Methods

An IV ceftolozane/tazobactam usage questionnaire was developed using the input of infectious disease/medical microbiology experts from different specialty types (physicians and pharmacists) across Canada. The CLEAR registry protocol/questionnaire was submitted and received approval by the Human Ethics Committee at the University of Manitoba (Winnipeg, Canada – April 2019).

Using the web-based research data management program, REDCapTM, clinicians (physicians and clinical pharmacists) responded directly to the usage questionnaire online starting June 2019. Clinicians were sent an email every 2 months encouraging their participation in CLEAR. A series of drop-down menus and short answer questions allowed for rapid (~3 minutes) completion of the survey thereby encouraging clinicians to complete usage questionnaires for as many patients as possible. The REDCapTM online survey link (https://es.gd/CLEARceftolozanetazobactam) was distributed via email to some > 270 CLEAR participants (members of AMMI and CSHP). The data from the CLEAR ceftolozane/tazobactam questionnaires were tabulated as of April 15, 2020 and results presented are based on 20 patient treatment surveys.

Results

Below are the cumulative tabulated results of the questions asked in the CLEAR ceftolozane/tazobactam usage survey questionnaires as of April 15, 2020. The following tables are based on a total of 20 patient treatment surveys (n = 20).

Conclusions

1. Ceftolozane/tazobactam was used to treat a variety of infections including hospital-acquired bacterial pneumonia, ventilatory-associated bacterial pneumonia, complicated intra-abdominal infection, complicated skin/skin structure infection, bone/joint infection and community-acquired bacterial pneumonia

2. Ceftolozane/tazobactam was exclusively used for the treatment of infections caused by Pseudomonas aeruginosa

3. Ceftolozane/tazobactam was primarily used due to resistance to existing antibiotics

4. More than 50% of patients treated with ceftolozane/tazobactam were critically ill in the ICU

5. Ceftolozane/tazobactam was mostly used after antimicrobial susceptibility testing using disk diffusion or Etest

6. Ceftolozane/tazobactam was frequently combined with a second anti-Pseudomonal agent including aminoglycosides, fluoroquinolones and colistin

7. The most common IV dosage administered was 1 g (0.5g) Q8H and 2 g (1g) Q8H administered using a short infusion

8. Ceftolozane/tazobactam was frequently used for durations >10 days

9. Ceftolozane/tazobactam treatment was associated with high rates of microbiological and clinical success, though bacterial persistence did occur and was at times associated with clinical failure and resulting death due to the infection

10. Ceftolozane/tazobactam was associated with excellent safety

Acknowledgements

The authors thank all the infectious diseases and medical microbiology experts (physicians and clinical pharmacists) in Canada for submitting patient data and for their support of CLEAR.

Merck Canada provided an unrestricted education grant.

Survey Access

CLEAR – ceftolozane/tazobactam link https://es.gd/CLEARceftolozanetazobactam