

Ceftriaxone use in Australian hospitals: results from the 2014 and 2015 Hospital National Antimicrobial Prescribing Survey

S. Koning^{1,2}, C. Chen^{1,2}, R. James^{1,3}, K. Buising^{1,2,3}, K. Thursky^{1,2,3}

¹National Centre for Antimicrobial Stewardship (NCAS) – Doherty Institute, ²Guidance Group – The Royal Melbourne Hospital, ³The University of Melbourne

Background

Since 2013, all Australian acute care facilities have been encouraged to participate in the annual Hospital National Antimicrobial Prescribing Survey [1] (Hospital NAPS) using a Guidance AMS tool, an online database developed by a multidisciplinary team. Hospital NAPS provides a standardised methodology to audit antimicrobial prescribing practices and compares prescribing patterns against like facilities or the national combined average. Ceftriaxone consistently remains one of the most commonly prescribed broad-spectrum antimicrobials and therefore an important target for antimicrobial stewardship. The aim of this study was to identify indications for which ceftriaxone was most commonly being prescribed and the reasons for which ceftriaxone was assessed as being inappropriate.

Methods

Data relating to ceftriaxone prescribing were analysed from the 2014 and 2015 Hospital NAPS, including:

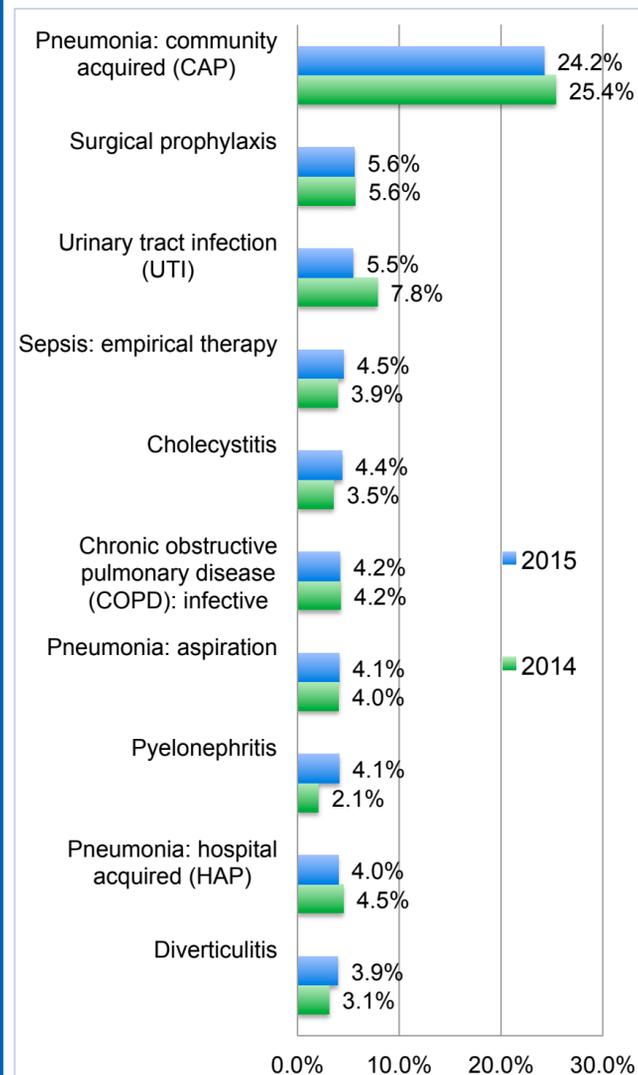
- % indication for use
- % concordance with the *Therapeutic Guidelines – Antibiotic* (endorsed National antimicrobial guidelines)
- % appropriateness of the prescription with regards to dosing, indication, allergy, and microbiology.

Concordance with guidelines and appropriateness assessments were assessed by antimicrobial experts, either locally or externally.

Results

In 2014, 248 hospitals participated in Hospital NAPS. This increased to 281 hospitals in 2015. A total of 1,558 and 2,032 ceftriaxone prescriptions were analysed respectively for 2014 and 2015. The most common indications for ceftriaxone prescriptions for 2014 and 2015 are outlined in Figure 1.

Figure 1. Most common indications for ceftriaxone use



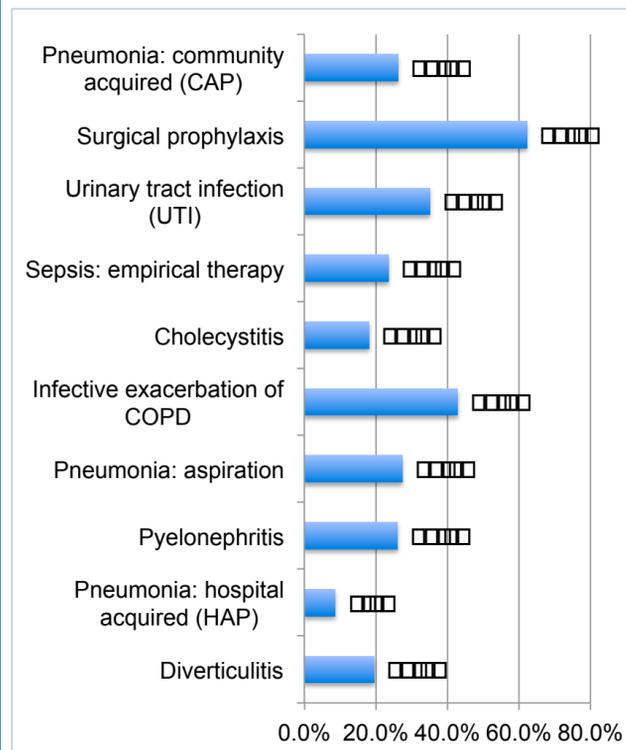
Results

Results from the Hospital NAPS showed:

- % 33.5% were non-concordant with any guidelines (local or national endorsed)
- % 30.5% were deemed to be inappropriate

Focusing on the top indications, ceftriaxone use for surgical prophylaxis and infective exacerbation of COPD appeared to have a large proportion of inappropriate ceftriaxone prescriptions (see Figure 2).

Figure 2. Percentage of prescriptions assessed as inappropriate



Overall, the most common reasons for inappropriate ceftriaxone use were:

- % failure to use a narrower-spectrum antimicrobial
- % lack of clinical indication
- % Incorrect dose or frequency

Conclusion

it was demonstrated that ceftriaxone is used for a multitude of indications within Australian hospitals, possibly due to its broad-spectrum activity, with a substantial percentage of these deemed inappropriate. Clear messages need to be promoted by antimicrobial stewardship programs around Australia.

It therefore stands out as a target for antimicrobial stewardship activities within Australian hospitals, encouraging prescribers to only prescribe ceftriaxone where appropriate and to utilise narrower spectrum antimicrobials as recommended in the nationally endorsed prescribing guidelines.

The overuse of ceftriaxone for various infections should be reviewed (with a particular focus on surgical prophylaxis and infective exacerbation of COPD); and further research should aim to:

- % explore reasons prescribers opt for more broad spectrum antibiotics
- % investigate methods to dissuade the use of ceftriaxone

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Contact: Sonia Koning: sonia.koning@mh.org.au