

Antimicrobial Stewardship (AMS) in the Outpatient Parenteral Antimicrobial Therapy (OPAT) Setting



N. Deborah Friedman^{1,2}, Rod James¹, Robyn Ingram¹, Mary O'Reilly^{3,4}, James J Pollard^{2,4}, Sonia Koning^{1,3}, Catherine George⁵, Kirsty Busing^{1,5}.

1 National Centre for Antimicrobial Stewardship; 2 Barwon Health; 3 Eastern Health; 4 HITH Society of Australasia; 5 Melbourne Health

Introduction

Antimicrobial resistance is a major threat to human health. In the OPAT setting broad-spectrum, once daily antimicrobials may be chosen in preference to other agents requiring multiple daily doses for reasons of convenience.

The role and effectiveness of antimicrobial stewardship (AMS) in the Australian hospital-in-the-home setting (equivalent to OPAT) has not previously been studied.

The National Antimicrobial Prescribing Survey (NAPS) assists in the auditing of antimicrobial prescribing practices within Australian health care facilities, providing a standardized tool facilitating quality improvement. It was developed in 2011 and is coordinated by The National Centre for Antimicrobial Stewardship (NCAS).

Methods

A multi-disciplinary working group was established with expertise in the hospital-in-the-home setting, comprising infectious diseases physicians, clinical microbiologists and AMS pharmacists.

The standard Hospital NAPS, widely used throughout Australian hospitals, was modified to suit the OPAT setting. Five hospitals in Victoria representing metropolitan, regional, public and private hospitals initially tested the tool's usability. A pilot of the OPAT NAPS tool was then launched to all OPAT services in Australia in April 2017.

Results

A pilot of the OPAT NAPS tool was undertaken over 17 weeks from April to July 2017. 23 OPAT services throughout Australia completed the pilot. 1154 prescriptions for 715 patients (63% male) were included. Patients included in the pilot ranged in age from 1 month to 101 years, the median age was 58 years. Patients were most often referred to OPAT services from emergency departments (40%), & general and acute care medical units (28%).

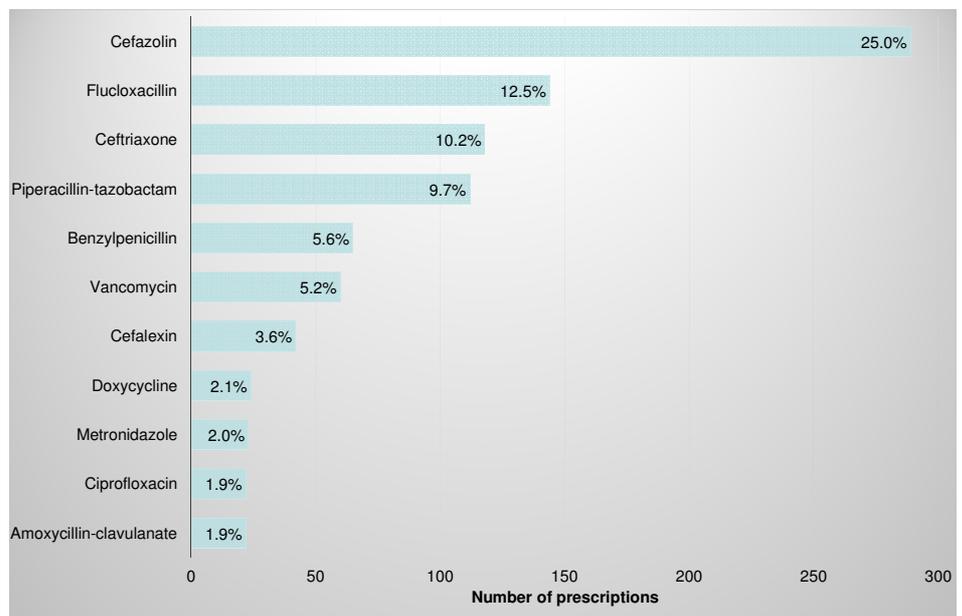
Results continued

The most common parenteral antimicrobial prescribed was cefazolin (25%), and piperacillin-tazobactam and ceftriaxone were prescribed in 20% of cases. (Figure 1) The most common indications for parenteral antimicrobials were; cellulitis (30%), osteomyelitis (8%), & pneumonia (7%).

Prescriptions were compliant with guidelines in 43% of cases, and appropriateness of antimicrobial prescribing was assessed as optimal in 75%, adequate in 12%, suboptimal in 8% and inadequate in 3%. Antimicrobial therapy duration was incorrect in 9% of cases.

The majority (80%) of prescriptions for community-acquired pneumonia, and exacerbations of COPD were non-compliant with guidelines. Ceftriaxone was the antimicrobial most frequently assessed as an inappropriate treatment choice. Piperacillin-tazobactam was used to treat a wide variety of conditions where a broad-spectrum, anti-pseudomonal antimicrobial would not usually be required, such as osteomyelitis, cellulitis, prosthetic joint infection and septic arthritis/bursitis.

Figure 1. Most commonly prescribed antimicrobials in OPAT



Conclusion

Outpatient parenteral antimicrobial therapy is convenient for patients by allowing them to go home, however, it has the capacity to result in overuse of once daily, broad-spectrum agents, and not all OPAT services have equivalent access to AMS.

The OPAT NAPS pilot has revealed that broad-spectrum agents were often utilized for infections, particularly respiratory tract infections, where alternative parenteral antimicrobials or oral agents could have been prescribed.

There are areas for improvement within compliance with prescribing guidelines and specifically optimization of prescribing via intervening in spectrum of activity of selected agents. OPAT NAPS has the capacity to encourage quality improvement to improve patient outcomes, limit the development of antimicrobial resistance and potentially reduce health care costs. Such robust data can also facilitate ongoing benchmarking between programs.

For further information please contact support@naps.org.au