Assessment of First-dose Infusion Reactions in Outpatient Parenteral Antimicrobial Therapy (OPAT) Service Patients

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INTRODUCTION

- Anaphylaxis related to antimicrobials initially administered entirely in the outpatient setting has been documented in one study and occurs rarely, if at all.[1]
- Despite a low risk of anaphylaxis, the 2018 Infectious Diseases Society of America (IDSA) OPAT guidelines recommend that the first dose of a new intravenous (IV) antimicrobial may be administered at home under the supervision of healthcare personnel.[2]
- In addition, many home health protocols require that a first dose be completed in a monitored healthcare setting, such as an infusion center, rather than providing monitoring and management in the home.
- The objective of this study is to assess the incidence of immediate reactions in patients receiving OPAT services who received an outpatient supervised first-dose infusion as part of care for long term antimicrobial management.

METHODS

- Single center, retrospective case series evaluating 93 adult patients who received a first-dose outpatient antimicrobial infusion between January 1, 2019 and October 31, 2021
- **Inclusion criteria**:
  - Patients ≥ 18 years of age enrolled in the University of Virginia (UVA) Health OPAT program
  - Received a first-dose IV antimicrobial infusion at a UVA-affiliated infusion center
- **Exclusion criteria**:
  - UVA patients receiving OPAT services who received dalbavancin or daily antimicrobial infusions at a UVA-affiliated infusion center
- **Primary Endpoint:** percentage of UVA patients receiving OPAT services who experienced an immediate reaction after receiving a supervised first-dose infusion at an infusion center
- **Statistical analysis**:
  - Descriptive analysis using Microsoft Excel

RESULTS

Table 1. Baseline Characteristics

Characteristic	Overall (N=93)
Age, y	60 [51-67]
Female	37 (40)
Number of allergies	2 [1-3]
History of hypersensitivity	
Any antimicrobial	28 (30)
Same antimicrobial class	0 (0)

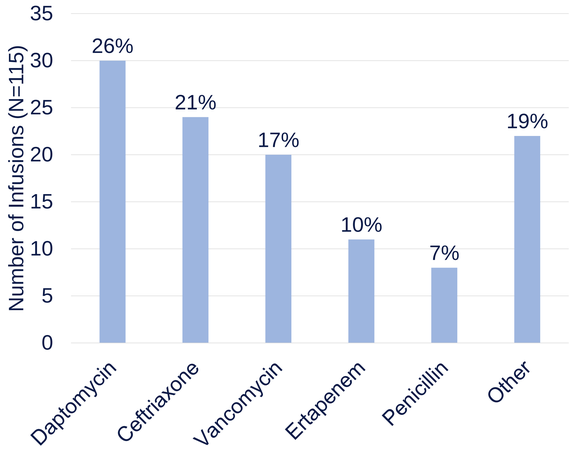
Table 2. Incidence of Immediate Reactions

Primary Outcome	Number of Patients (N=93)
Immediate reaction experienced	6 (6)
Itching	4
Nausea	1
Erythema	3

Immediate reaction was defined as a suspected IgE-mediated reaction or infusion-related reaction that occurred within 60 minutes after exposure to the antimicrobial

RESULTS

Figure 1. First-dose Infusion Antimicrobial



Other antimicrobials: amikacin (1), amphotericin B (3), ampicillin (2), ampicillin/sulbactam (2), cefazolin (1), ceftaroline (1), meropenem (3), micafungin (3), piperacillin/tazobactam (4), tigecycline (2)

Table 3. Characteristics of Patients Who Experienced an Immediate Reaction

Patient	First-Dose Antimicrobial	Previously Received Same Antimicrobial	Immediate Reaction Experienced	Infusion Paused or Slowed	Treatment of Reaction
1	Vancomycin	>12 months	Erythema	Paused	Diphenhydramine
2	Vancomycin	>12 months	Itching & erythema	Slowed	Diphenhydramine
3	Vancomycin	No	Itching	Paused	Diphenhydramine
4	Vancomycin	No	Itching & erythema	Paused, slowed	Diphenhydramine, Famotidine
5	Ceftriaxone	No	Itching	Paused	Diphenhydramine
6	Ertapenem	No	Nausea	N/A	Ondansetron

RESULTS

Table 4. Previous Receipt of the Same Antimicrobial

	Experienced an Immediate Reaction (n=6)	Did Not Experience an Immediate Reaction (n=87)
Did not receive same antimicrobial previously	4 (67)	69 (79)
Received same antimicrobial previously	2 (33)	18 (21)
0-3 months	0	3
3-6 months	0	4
6-12 months	0	0
>12 months	2	11

CONCLUSIONS

- Reaction to an initial infusion in the outpatient setting was rare
- None of the reactions were consistent with IgE-mediated reactions
- Most first-dose infusion reactions were to vancomycin
- None of the reactions required a change in antibiotic choice
- For patients who had a reaction and had received the same antimicrobial previously, doses were given >12 months prior
- These data suggest that it would be a reasonable consideration to forgo monitoring for a majority of patients receiving first-dose IV antimicrobials in the outpatient setting

REFERENCES

1. Dobson PM, et al. J Infus Nurs. 2004; 27(6):425-30.
2. Norris AH, et al. Clin Infect Dis. 2019;68(1):e1-e35.