Identifying Intervention Opportunities to Prevent Readmissions during OPAT

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BACKGROUND

- Patients receiving outpatient parenteral antimicrobial therapy (OPAT) experience high rates of unplanned readmissions.
- **To inform interventions that may reduce risk of unplanned readmissions during OPAT, we examined the frequency of and reasons for readmission in a large cohort of OPAT patients.**
- Historically at UNC, OPAT courses with defined endpoints were not scheduled for follow up appointments until the planned end of therapy.

Data & Methods

Design: Retrospective cohort study of electronic health record data

Setting: University of North Carolina Medical Center (UNC), a large tertiary academic hospital in Chapel Hill, North Carolina

Study Population: All patients who initiated IV antimicrobial courses in the UNC OPAT program from February 2015-February 2020 (N=1,165)

Patients were evaluated by an infectious diseases (ID) physician prior to OPAT enrollment, discharged with >14 remaining days of prescribed therapy, and received care coordination and systematic monitoring by an ID pharmacist.

Methods:

- EHR data were used to characterize each patients' OPAT course and readmission details
  - Length of readmission stay
  - Primary ICD-9/ICD-10-CM diagnosis code associated with readmission
  - Reason for readmission in clinical notes
- Diagnosis codes were adjudicated and summarized by a multidisciplinary team
- The Complex Care Readmission category is comprised of readmissions where intensive case management could be beneficial for the patient including those involving precarious living situations, drug overdose, or failure to thrive

RESULTS

- **19% of OPAT courses resulted in a readmission during OPAT therapy (n=227)**
- **Median time from OPAT initiation to readmission was 17 days (IQR 8-29)**
- **66% of readmissions preceded first scheduled ID follow-up appointment**
- **Median time from OPAT initiation to scheduled follow-up was 27 days (IQR 15-35)**
- **Median length of readmission stay was 5 days (IQR 2-8, minimum-maximum 1-69)**
- **Half of readmissions were associated with OPAT or other infection, and half were for other reasons.**

TABLE 1: Reason for Readmission: Clinical (n=227)

Reason for Readmission	Number of Readmissions	Percentage of Readmissions
Unrelated to OPAT Diagnosis	125	55%
Clinical Failure	40	18%
Drug Related ADR	28	12%
New Infection	22	10%
Fever	12	5%

TABLE 2: Reason for Readmission: ICD-9/10 Codes (n=227)

Reason for Readmission	Number of Readmissions	Percentage of Readmissions
Worsening OPAT Infections	41	18%
OPAT Related ADR	28	12%
New Infection	26	11%
Cardiac	19	8%
Complex Care Readmissions (e.g. Readmissions associated with a precarious living situation, drug overdose, or failure to thrive)	17	7%
Logistics	16	7%
Non-Adverse Event Related Gastro-intestinal Readmissions	15	7%

CONCLUSIONS & IMPLICATIONS

- One-fifth of OPAT courses resulted in readmission during therapy.
- **Earlier post-discharge follow-up by a multidisciplinary team may prevent infection-related readmissions for OPAT patients.**
- This work underscores the need for enhanced care coordination with non-infectious disease providers to manage OPAT patients.

LIMITATIONS

- Patients in UNC's OPAT program are a selected subset of UNC Medical Center patients who are discharged on intravenous antimicrobial therapy.
- UNC OPAT patients have had ID consultation and may represent a subset of patients with particularly complex comorbidities.
- Reason for readmission was based on diagnosis codes and notes from the EHR and may be subject to measurement error.

DISCLOSURES

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