Oral Vancomycin Prophylaxis Against *Clostridioides difficile* in Patients Admitted to a Tertiary Academic Medical Center

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Background

In an effort to more accurately diagnose *Clostridioides difficile* infection (CDI), many hospitals have switched to 2-step testing algorithms that rely on nucleic acid amplification testing with reflex enzyme immunoassay for toxin. At the same time, oral vancomycin prophylaxis (OVP) against CDI is increasingly being used in hospitals. Initial studies focused on preventing recurrence in patients with a prior history of CDI, but OVP is also being studied in primary prevention. We hypothesized that following the implementation of 2-step testing, clinicians may use OVP for prevention of a patient's first episode of CDI based on knowledge of prior PCR+/Toxin- testing (indicating possible colonization).

Objectives

1. Describe the patient population receiving OVP at BIDMC.
2. Identify the reported indication for OVP.
3. Describe systemic antibiotic usage and *C. difficile* testing during receipt of OVP.

Methods

- Single-center, retrospective cohort study
- Study population: patients admitted to BIDMC who received vancomycin PO once daily or BID for the prevention of CDI during the 12 months following implementation of 2-step testing (August 1, 2018 to July 31, 2019)
  - Excluded: those who received this dosing as part of a taper following acute infection
  - Only first use of OVP during study period included
- Data collected included basic demographics, details of patients' CDI history, rationale for prophylaxis based on clinical documentation, antibiotic exposures, and subsequent CDI testing during hospitalization

Results

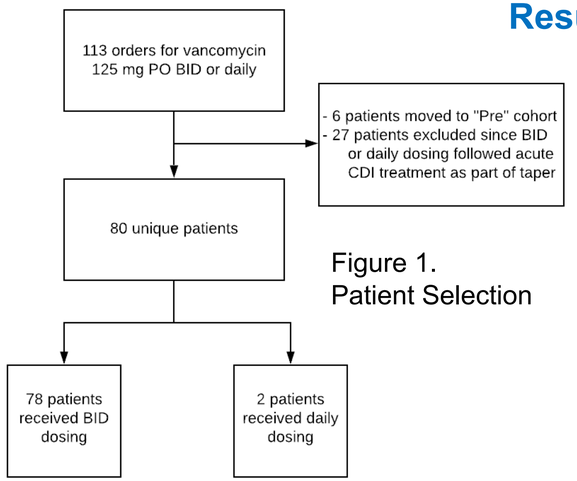


Figure 1. Patient Selection

Table 1. Baseline Characteristics (n = 80)

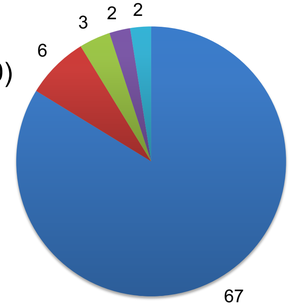
Age in years, mean (SD)	67.2 (13.2)
Sex male, # (%)	38 (47.5)
Hospitalized w/in 90 days, # (%)	62 (77.5)
Surgery w/in 90 days, # (%)	11 (13.8)
Prior colectomy, # (%)	2 (2.5)
Prior CDI, # (%)	73 (91.3)
PCR+/Toxin+	20
PCR+ only	26
Reported OSH test (any type)	18
PCR+/Toxin- but treated as CDI	9
If prior CDI, ≥2 episodes; # (%)	34 of 73 (46.6)

Table 2. Hospitalization Details (n = 80)

Antibiotics received, mean (SD)	4.1 (2.1)
Antibiotic exposure class (highest), # (%)	
High	72 (90)
Medium	4 (5)
Low	0
N/A (no systemic antibiotics received)	4 (5)
ID consult obtained, # (%)	48 (60)
No comment on OVP	15
Recommended OVP	27
Did not recommend OVP	6
C. difficile testing while on OVP, # (%)	24 (30)
Cancelled*	2
PCR-	22
PCR+	0

* Not analyzed due to formed sample or recent PCR- sample submitted w/in previous 7 days

Figure 2. OVP Indication (n = 80)



Conclusions

- Following implementation of 2-step testing for CDI, use of OVP for primary prevention based solely on knowledge of prior PCR+/Toxin- testing in patients without a history of clinical CDI was rare (3 of 80 patients, 3.8%); majority of patients (73 of 80, 91.3%) had a history of CDI and received secondary prevention.
- Most patients receiving OVP received a systemic antibiotic considered high risk for CDI.
- There were no documented cases of CDI while patients were actively receiving OVP.
- Approximately 2/3 of OVP use during this time period occurred in the absence of an explicit recommendation from an Infectious Diseases consult.

Limitations

- Chart review was limited by clinical documentation available, unable to clarify intentions with prescribers
- Given lack of follow up after hospital discharge in all patients, incidence of CDI may be underestimated
- Use of OVP may have changed due to newly published literature – independent of changes in BIDMC's testing algorithm

Future Directions

- Compare this cohort to patients receiving OVP in the "pre-testing change" period from July 1, 2017 to June 30, 2018
- Inform OVP recommendations in future BIDMC Interdisciplinary Practice Guidelines concerning *C. difficile*

References

1. Bignardi GE. J Hosp Infect 1998; 40:1–15.
2. Brown KA, et al. Antimicrob Agents Chemother 2013; 57:2326–2332.
3. Johnson SW, et al. Clin Infect Dis 2020; 71(5):1133-1139.