

Preliminary Evaluation of Vancomycin vs Probiotic Prophylaxis in Patients at Risk for C. diff.



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Background

- *Clostridium difficile*, or *C. Diff*, is a bacterial strain that can cause colitis, resulting in severe, potentially life-threatening diarrhea
- The U.S. is estimated to have 500,000 *C. Diff* cases annually, and the cost of treatment is estimated to exceed \$4.8 billion per year
- The greatest risk factor identified for *C. Diff* Infection (CDI) is disruption to the GI flora caused by antibiotic therapy
- Certain antibiotics and duration of therapy seem to affect this risk
- Other risk factors include age > 65, certain disease states (chronic kidney disease, diabetes), proton pump inhibitors, and exposure to healthcare settings
- Oral vancomycin 125mg once or twice daily is standard prophylaxis for high-risk patients
- There is some evidence supporting the use of certain probiotic strains for *C. Diff* prophylaxis, but more research is needed to determine how effective these products are

Purpose

To determine which, if any, probiotic strains are effective for *C. Diff* prophylaxis, and how these strains compare with traditional vancomycin prophylaxis strategies

Methods

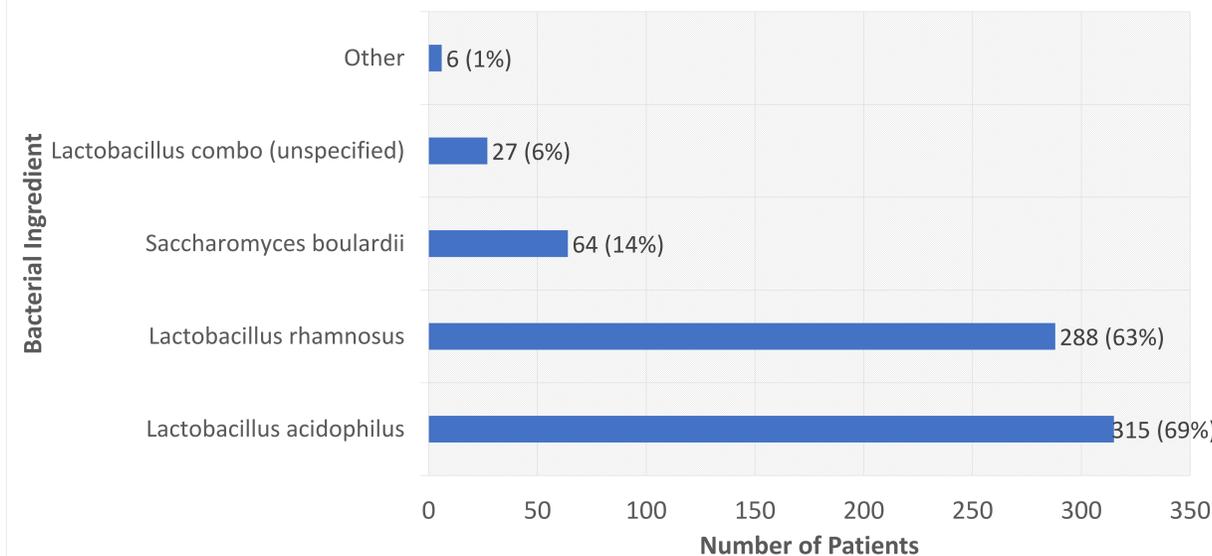
- Setting: University of Kansas Medical Center
- Retrospective cohort study, with data between 2017-2020
- Data extracted from HERON (Healthcare Enterprise Repository for Ontological Narration)
 - A searchable database of de-identified patient care records
- Inclusion criteria:
 - Exposed to antibiotics during hospital stay (clindamycin, cephalosporins, penicillins, etc.)
 - Taken oral vancomycin or probiotics
 - Over 18 years old
- Exclusion criteria:
 - Under 18 years old
 - No exposure to antibiotics during stay
- Data extracted included:
 - Patient demographics
 - Date of first *C. diff* diagnoses and number of recurrent infections
 - Name, dose, formulation, rout of administration, number of doses given, start date, and end date for antibiotics, PPIs, and probiotics received while inpatient
- Analyses run using SPSS v.27, Microsoft Excel
- The University of Kansas Medical Center IRB approved the study

Preliminary Results

Table 1: Patient Demographics

Characteristic	PO Vancomycin Group (n=13317)	Probiotics Group (n=458)
Age, y, median (range)	62 (18-103)	66 (19-100)
Male gender %	6974 (52%)	183 (40%)
Race (N, %)		
White	9773 (73%)	375 (82%)
African American	2123 (16%)	55 (12%)
Other	1427 (11%)	30 (7%)
Medical Documentation (N, %)		
Any documented CDI	1375 (10%)	92 (20%)
CDI specified as recurrent	187 (1%)	15 (3%)
Exposure to high-risk antibiotics (lincosamides, fluoroquinolones, cephalosporins, carbapenems)	12486 (94%)	444 (97%)
Exposure to moderate risk antibiotics (Penicillins)	10544 (79%)	366 (80%)
Exposure to proton pump inhibitors	9677 (73%)	368 (80%)

Figure 1: Bacterial Ingredients of Used Probiotics



Conclusions

Pending

Limitations

- No access to outpatient data
- Data pulled from a single center
- Patient comorbidities not captured in data
- Not generalizable to pediatric population
- Data on low-risk antibiotics (macrolides, sulfamethoxazole/trimethoprim, tetracyclines, IV vancomycin) was not included

Next Steps

- Evaluate prevention effectiveness of various probiotic products
- Compare vancomycin prophylaxis to successful probiotics
- Analyze for other possible factors contributing to CDI risk

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Disclosures

The authors have no conflicts of interest to disclose.