IMPACT OF THE COVID-19 PANDEMIC FIRST WAVE ON *CLOSTRIDIOIDES DIFFICILE* INFECTION

Mendo-Lopez, Rafael[1,2],MD; Pacheco, Lauren[2], MD; Villafuerte-Galvez, Javier[3], MD.
[1] Infectious Diseases, Department of Medicine, Case Western Reserve University-University Hospitals, Cleveland, OH, [2]Internal Medicine, Department of Medicine, Brookwood Baptist Health, Birmingham, AL, [3]Gastroenterology , Department of Medicine, Beth Israel Deaconess Medical Center, Boston, MA.

Princeton Baptist Medical Center
Brookwood Baptist Health

Brookwood Baptist Health

BACKGROUND

- *Clostridioides difficile* infection (CDI) is the leading cause of nosocomial diarrhea and is a costly burden on the healthcare system.
- COVID-19 pandemic brought enhanced infection control measures that could decrease CDI transmission.
- Diarrhea secondary to COVID-19 and increased usage of broad-spectrum antibiotics could increase testing for or incidence of CDI.

OBJECTIVE

- Assess variations in CDI incidence during the first surge of the COVID-19 pandemic in a tertiary community medical center in the Southern United States.

METHODS

STUDY DESIGN

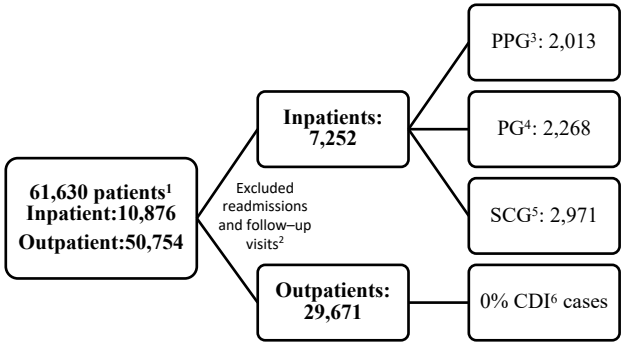
- **Type:** Retrospective study.
- **Population:** Outpatients and Inpatients of Princeton Baptist Medical Center (Birmingham, AL).
- **Groups:**
  - PPG (pre-pandemic): March 1st, 2020 to May 31st, 2020.
  - PG (pandemic): June 1st, 2020 to August 31st, 2020.
  - SCG (seasonal control): June 1st, 2019 to August 31st, 2019.

VARIABLES/DEFINITIONS

- **Variables:** Incidence of CDI, testing rates, and positivity rates for CDI , and rate of coinfection between COVID-19 and CDI.
- **CDI case:**
  - Positive toxin enzyme-linked immunosorbent assay (EIA) and glutamate dehydrogenase (GDH).
  - Positive GDH or EIA + Positive nucleic acid amplification test (NAAT).

RESULTS

FIGURE 1: PATIENT DISTRIBUTION



[1] All admissions and outpatient visits at Princeton Baptist Medical Center, [2] Include only first admission and first outpatient visit for each patient, [3] PPG: Pre-pandemic group, [4] PG: Pandemic group, [5] SCG: Seasonal Control group, [6] CDI: *Clostridioides difficile* infection

TABLE 1: FREQUENCY OF CDI AND COVID-19 INFECTION- INPATIENTS

Variables	Pre-pandemic group (n=2013)	Pandemic group (n=2268)	Seasonal Control group (n=2971)	p value
CDI[1] frequency	7 (0.4%)	4 (0.2%)	12 (0.4%)	0.335
CDI testing rate	45 (2.2%)	57 (2.5%)	91 (3.1%)	0.185
CDI positivity rate	7/45 (15.6%)	4/57 (7.0%)	12/91 (13.2%)	0.340
GDH[2] (+)	9 (0.5%)	6 (0.3%)	15 (0.5%)	
Toxin EIA[3] (+)	4 (0.2%)	3 (0.1%)	7 (0.2%)	
NAAT[4] (+)	3/5 (60%)	1/3 (33.3%)	5/8 (62.5%)	
COVID-19 frequency	40 (1.9%)	147 (6.5%)	0 (0%)	
COVID-19 positivity rate	40/478 (8.4%)	147/1068 (13.8%)	0 (0%)	
Co-infection *C. difficile*/SARS-CoV-2	1/40 (2.5%)	0 (0%)	0 (0%)	

[1] CDI: *Clostridioides difficile* infection, [2] GDH: Glutamate dehydrogenase, [3] Toxin EIA: toxin enzyme-linked immunosorbent assay, [4] NAAT: nucleic acid amplification test.

RESULTS

TABLE 2: INPATIENT DISTRIBUTION

Variables	Pre-pandemic group (n=2013)	Pandemic group (n=2268)	Seasonal Control group (n=2971)	Total (n=7252)
Age	61.4 ± 17.9	60.7 ± 17.5	61.5 ± 17.4	61.2 ± 17.5
Female	1097 (54.5%)	1209 (53.3%)	1606 (54.1%)	3912 (53.9%)
Unit				
Emergency	1287 (63.93%)	1360 (59.96%)	1886 (63.48%)	4533 (62.51%)
Medical/Surgical	465 (23.10%)	651 (28.70%)	752 (25.31%)	1868 (25.86%)
ICU[1]	100 (4.97%)	88 (3.88%)	118 (3.97%)	306 (4.22%)
Other	161 (8.0%)	169 (7.46%)	215 (7.24%)	545 (7.41%)
Comorbidities				
MI[2]	285 (14.2%)	259 (11.4%)	362 (12.2%)	906 (12.5%)
CPD[3]	543 (26.9%)	586 (25.8%)	903 (30.4%)	2032 (28%)
Renal disease	468 (23.3%)	532 (23.5%)	771 (25.9%)	1771 (24.4%)

[1] ICU: Intensive care unit, [2]MI: Myocardial infarction, [3]CPD: Chronic pulmonary disease

CONCLUSIONS

- No statistically significant differences in CDI incidence or positivity rate in the pre-pandemic, pandemic, and seasonal control groups for inpatients.
- No CDI cases were detected in outpatients.
- Likely due to low testing rate in our population.

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Corresponding author: Rafael Mendo-Lopez, MD. **Email:** rxm870@case.edu