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IMPACT OF THE ANTIBIOTIC THERAPY USED DURING THE SARS-COV-2 PANDEMIC ON THE INCIDENCE OF CLOSTRIDIOIDES DIFFICILE INFECTION

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Background and importance

Suspicion of bacterial coinfection in patients with SARS-COV-2 pneumonia has led to an increase consumption of antibiotics used in the treatment of community-acquired pneumonia (CAP). One of the best-known risk factors for Clostridioides difficile infection (CDI) development is antibiotic treatment but there are inconsistent findings regarding which groups of antibiotics are most strongly associated.

Objectives

We aimed to relate the risk of developing CDI during hospitalization in the internal medicine division to changes in antibiotics consumption in the pre-pandemic and COVID-19 pandemic period

Material and methods

Single center retrospective cohort study was conducted in a secondary hospital (900 beds). Hospitalized patients in 2019 and 2020 period who have presented hospital acquired diarrhea with simultaneous Clostridioides difficile toxin determination were included. We selected patients admitted to internal medicine units to relate incidence of CDI with change in the antibiotic consumption profile between both periods.
Microbiological diagnosis consists in simultaneous detection of glutamate dehydrogenase and toxins A/B enzyme immunoassay test. Positive results were confirmed by PCR.
Statistical treatment: to compare the CDI incidence between the two periods, the rate ratio was calculated. Antibiotic consumption comparison is performed using independent samples Z-test.

	2019 (pre-pandemic period)	2020 (pandemic period)	
Total/mean (patient-days)	74.012/10.16	72.742/9.2	
Age (yr) Gender (male%)	81 46.5%	79 48.5%	
Incidence CDI/10,000 patient-days	6.35	2.47	*RR = 0.39* *p <0.001*
ANTIBIOTIC consumption DDD/100 patient-days			
Ceftriaxone	11.68	21.75	*p <0.01*
Amoxicillin/clavulanic	14.96	10.44	*p <0.01*
Quinolones	13.67	9.07	*p <0.01*
Carbapenems	4.39	4.48	*P=0.4*
Piperacilin/tazobactam	5.13	4.71	*p <0.01*

Conclusion and relevance

- Changes in antimicrobial use related to the outbreak suggests that clinicians over-prescribed fist line CAP focused antibiotics.

- CDI incidence reduction is related to a marked decrease use in quinolones and amoxicillin/clavulanic despite the fact that consumption of 3rd generation cephalosporins has doubled.

- Another implemented protocols as more comprehensive cleaning and hand-washing hygiene could have contributed to marked CDI decrease.