A Retrospective Evaluation of Compliance to Clostridium Difficile Treatment Guidelines

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INTRODUCTION

Nearly half a million Americans suffered from Clostridium difficile (C. diff.) infections in a single year according to a study released by the Centers for Disease Control and Prevention (CDC). Approximately 29,000 patients died within 30 days of the initial diagnosis of a C. diff. infection. Of these 29,000 – 15,000 deaths were estimated to be directly related to a C. diff. infection. Studies indicate that C. diff. has become the most common microbial cause of Healthcare-Associated Infections found in U.S. hospitals driving up costs to $4.8 billion each year in excess healthcare costs in acute care facilities alone. Because C. diff. is an important cause of infectious disease death in the U.S., it is of vital importance that initial management of C. Diff be appropriate and correct based on the patient's clinical presentation. Proper treatment of C. Diff seems to pose a challenge for the initial health care provider (ED physicians and admitting physicians) in regards to following proper guidelines and tailoring treatment to specific patient comorbidities.

PURPOSE

Our goal with this study is to investigate via retrospective chart review over the past 12 months to find out how often proper treatment was administered for patients admitted with a diagnosis of C. diff. infection. The second part of this study evaluates whether creating an order set with suggested antibiotic regimens based on criteria set by IDSA guidelines improves compliance to C. diff. treatment guidelines and decreases recurrence in those same individuals.

METHODS

This study is a retrospective chart review on patients admitted between Feb 2018- Feb 2019 at Franciscan Health St James Olympia Fields. Subjects were randomly selected with ICD-10 code for CDI. Age, gender, comorbidities, admission laboratory values, admission and discharge dates, and clinical course were obtained from electronic medical records. Patients were assigned disease severity as outlined by IDSA guidelines. The compliance to guidelines was assessed at initial treatment and as subjects further stratified into the categories non-severe, severe and fulminant disease. Compliance to guidelines was determined by type and duration of therapy. Secondary endpoints such as clinical outcomes such as 90-day mortality, therapy escalation and clinical cure which were also evaluated. Inclusion criteria included Age > 18, Subjects with laboratory confirmed C. diff. positive assay, treatment was initiated inpatient. Exclusion criteria included allergy to the antibiotics, outpatient C. diff. treatment and patients with recurrent CDI.

RESULTS

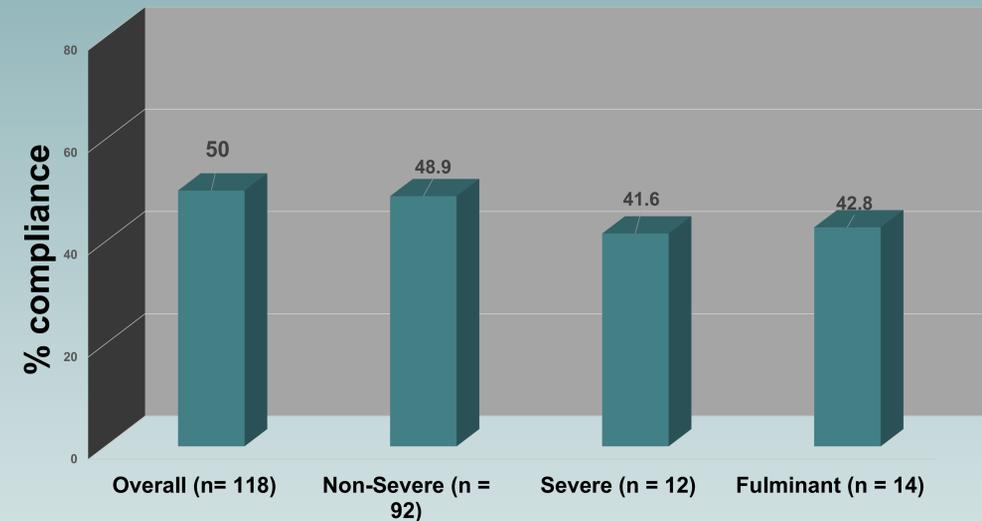**Figure 1: Clostridium Difficile guidelines compliance %**

Overall (n= 118): 50
Non-Severe (n = 92): 48.9
Severe (n = 12): 41.6
Fulminant (n = 14): 42.8

Table 2: Clinical Outcomes

CLINICAL OUTCOME	OVERALL n (%)	NON-SEVERE n= 92	SEVERE n=12	FULMINANT n=14	P-VALUE
THERAPY ESCALATION	13(11%)	10(10.8%)	0	3(21.4%)	0.10
CLINICAL CURE	75 (63%)	58(49%)	7(58%)	10(71.4%)	0.05
MORTALITY	23(19.4%)	11(11.9%)	4(33.3%)	8(57.1%)	<0.001

DISCUSSION

A total of 118 patients were included in this study. This study shows that physician adherence to evidence-based guidelines for treatment of CDI was poor (50%). The study also found that compliance was lower in subjects with severe and fulminant disease. Overall, mortality associated with Clostridium Difficile treatment was 19.4% across all patients diagnosed with CDI regardless of severity of illness. Mortality was 57.1%(P <0.001) in patients with fulminant disease. Mortality was 33.1% in patients with severe disease and 19.4% in patients with non-severe disease. These results highlight that compliance with treatment guidelines needs more work at our community hospital. Since compliance was low, clinical outcomes. It is important to point out that The study was conducted at a single center limiting the external validity. Additionally, this was a retrospective evaluation that may be subject to researcher bias, as the primary endpoint relied upon the investigator's assessment of the subject's CDI severity category and appropriateness of treatment.

CONCLUSION

CDI is a highly morbid condition and places a heavy burden on the healthcare system. Failing to adhere to the guidelines for treatment of Clostridium Difficile is detrimental to patients and results in worse clinical outcomes. This study identified that compliance to treatment guidelines is poor and barriers to compliance still exist despite education and guideline availability. To improve compliance to treatment guidelines in our hospital, we are currently developing an electronic order set through EPIC based on IDSA guidelines to allow for accurate treatment delivery and provide better outcomes. We propose that the order set will remind physicians to pick the appropriate antibiotic based on patient's clinical presentation. As a result, the next step in this study is to incorporate an order set in our EHR to evaluate if that improves compliance with treatment guidelines leading to better clinical outcomes.

References

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