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Case Proceedings

Bezlotoxumab Therapy for Recurrent *Clostridium difficile* Infection in an Ulcerative Colitis Patient

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Background: *Clostridium difficile* infection (CDI) is the most common infectious cause of nosocomial diarrhea, comprising 10%–20% of all cases. CDI is a significant complication in patients with inflammatory bowel disease (IBD). New monoclonal antibody therapies have emerged as leading treatment options for recurrent CDI (rCDI). Bezlotoxumab, a novel monoclonal antibody, has shown success in decreasing the recurrence rates of patients with rCDI. However, data extrapolating diminished rCDI in patients with concomitant IBD is limited.

Methods: A single infusion of bezlotoxumab @ 10mg/kg was given with fidaxomicin 200mg for 10 days in a patient with rCDI and ulcerative colitis

Results: The patient's symptoms improved, inflammatory markers normalized, and she has remained asymptomatic for twelve months

Conclusions: This case supports the findings in the MODIFY I/II trials that Bezlotoxumab is a viable treatment option of rCDI in IBD patients.

Lay Summary

Clostridium difficile, a diarrheal infection, commonly recurs despite standard therapies. Bezlotoxumab, a medication for recurrent *C. difficile* infections, has limited data in inflammatory bowel disease. The case demonstrates successful use of bezlotoxumab in a patient with ulcerative colitis and recurrent CDI.

Key Words: bezlotoxumab, *Clostridium difficile*, ulcerative colitis

Introduction

Clostridium difficile infection (CDI) constitutes the most common infectious cause of nosocomial diarrhea, comprising 10%–20% of all cases.[1,2] Inflammatory bowel disease (IBD) patients suffer from significantly higher CDI recurrence than the general population, as well as increased mortality.[3] New monoclonal antibody therapies, such as bezlotoxumab, have improved management of recurrent CDI (rCDI). The MODIFY I/II trial included 44 patients with known IBD, 28 of which received bezlotoxumab. Among these 28 patients, there was a 27.2% absolute reduction in the incidence of rCDI.[4] Encouraged by these results, we recently prescribed bezlotoxumab in an ulcerative colitis (UC) patient with rCDI and herein report our experience.

Case

A 21-year-old female with a history of UC diagnosed in 2017 presented for treatment of rCDI. Her first episode of CDI occurred in 2019 (see Figure 1) during an active UC flare treated with steroids and infliximab induction. CDI was successfully treated with a 4-week course of 125 mg oral vancomycin twice daily followed by once daily for an additional 4 weeks. CDI recurred 1 year later, testing positive for *C. difficile* via glutamate dehydrogenase antigen and PCR for toxin B while on vedolizumab for UC treatment. She was treated with 125 mg oral vancomycin, 4 times daily, and tapered down by 1 dose over a 4-month period. Two years after her initial CDI, she developed worsening non-bloody

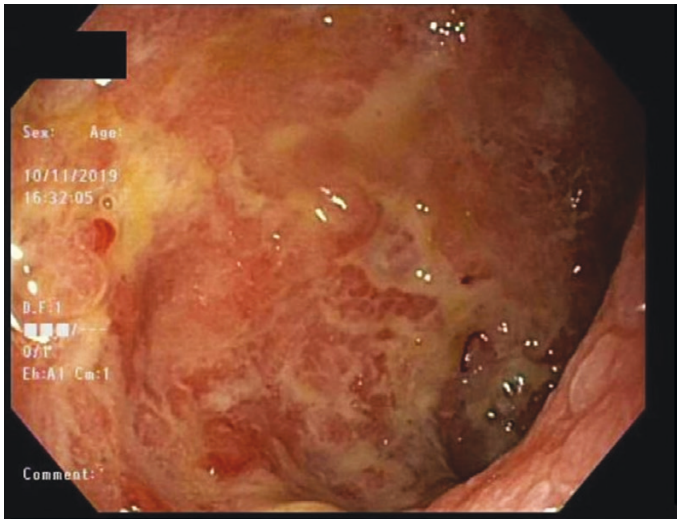

Figure 1. Endoscopic findings from sigmoid colon during the patients first episode of *Clostridium difficile* in 2019 demonstrating friable, congested, ulcerated mucosa (Mayo III).

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diarrhea, nausea, and anorexia with weight loss. She again tested positive for *C. difficile* via glutamate dehydrogenase antigen and PCR for toxin B. Fecal calprotectin was 2190 μg g^{-1}. She was treated with 14-day course fidaxomicin 200 mg BID and a single infusion of bezlotoxumab 10 mg kg^{-1}, as per protocol. Treatment for UC was not adjusted. At follow-up 1 month later, her symptoms had resolved, and fecal calprotectin normalized (17 μg g^{-1}). Twelve months later, she remains asymptomatic.

Discussion

Recurrent CDI is a frequent culprit for inducing IBD flares and is difficult to manage. Fecal transplant (FMT) is an option for rCDI with reported cure rates above 85%[5,6]; however, FMT can be a logistical challenge to complete at many institutions and risks cross-contamination of endoscopic facilities. Bezlotoxumab is an appealing option for rCDI as a single dose medication with few reported side effects. In this patient, bezlotoxumab quickly resolved both rCDI and UC flare without need for alteration or escalation of biologic therapy with remission lasting >1 year. This case further supports bezlotoxumab use in UC patients with rCDI to improve clinical outcomes. Bezlotoxumab should be considered early in this patient population, particularly in healthcare facilities without timely access to FMT.

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Authors' Contributions

Aaron Fein—lead author. Cody Kern—secondary author and reviewer. Terrance Barrett—attending advisor and reviewer. Courtney Perry—article guarantor, reviewer, and attending advisor.

Conflicts of Interest

None declared.

Data Availability

No new data were created or analyzed.

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