

# Acid Suppressive Medications and *Clostridium Difficile* Infection Treatment Failure in Hospitalized Patients

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*Clostridium difficile* infection (CDI) is reported in over a half million individuals in the US each year with at least one recurrence in 83,000 patients. There is conflicting evidence on whether acid suppressive medications (ASM), frequently overused in hospitalized patients, influence CDI treatment response. The purpose of this study was to identify whether ASM during CDI treatment in hospitalized patients is associated with an increased risk of readmission for CDI. A cohort study was performed using discharge data from a large academic community medical center between January 1, 2011 and December 31, 2016. Patients were included if they were aged 18 years or older with CDI (ICD-9-CM code of 008.45 and a positive GDH test). We excluded patients who expired prior to discharge, resided further than a 20-mile radius from the medical center, and those that were pregnant. The primary outcome was readmission for CDI up to 90 days after discharge. A total of 518 patients were included (205 ASM group, 313 control group). Readmission for CDI was more common in patients receiving ASM (21.0% versus 13.4%;  $p=0.023$ ). The risk for recurrence remained significant after adjusting for CDI treatment (OR: 1.66, 95% CI=1.03-2.66,  $P=0.037$ ). Subgroup analyses identified an increased risk of recurrent CDI only in the proton pump inhibitor (PPI) subgroup after adjustment for confounders (OR: 2.12, CI=1.02-4.38,  $P=0.043$ ). Histamine antagonist use was not associated with a significant risk in recurrence of CDI. ASM, especially PPI, use during CDI treatment increases the risk of hospital readmission for CDI. ASM should be discontinued during CDI treatment whenever possible. Clinicians may consider histamine antagonists as an alternative to PPI for acid suppression but this strategy requires further study. Supported by NIH R25ES020721.

