Prevalence of and Factors Associated with Clostridium difficile Co-infection Among Patients with Candidemia, United States, 2014–2016

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Journal Title: Open Forum Infectious Diseases
Volume: Volume 4, Number suppl_1
Publisher: Oxford University Press (OUP) | 2017-10-04, Pages S55-S55
Type of Work: Article | Final Publisher PDF
Publisher DOI: 10.1093/ofid/ofx162.127
Permanent URL: https://pid.emory.edu/ark:/25593/s6g32

Final published version: http://dx.doi.org/10.1093/ofid/ofx162.127

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Accessed November 14, 2019 7:46 PM EST
1779. Prevalence of and Factors Associated with *Clostridium difficile* Co-infection Among Patients with Candidemia, United States, 2014–2016
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**Session:** 216. The Fungus Among us – Clinical Advances  
**Saturday, October 7, 2017:** 8:30 AM

**Background.** Candidemia and *Clostridium difficile* infection (CDI) are two common healthcare-associated infections (HAIs) and share risk factors such as antibiotic use and prolonged hospitalization. CDI and CDI treatment disrupt gut microbial diversity, allowing Candida overgrowth and translocation to the bloodstream. We describe CDI co-infection among patients with candidemia.

**Methods.** Population-based surveillance for candidemia was conducted through CDC's Emerging Infections Program during 2014–2016. A case of candidemia was defined as a blood culture positive for *Candida* species collected from a surveillance area resident. Demographic and medical information, including occurrence of CDI, was collected. We defined co-infection as CDI within 90 days of candidemia and performed bivariant analysis to assess factors associated with co-infection.

**Results.** Among 2129 cases of candidemia, 190 (9%) had CDI co-infection; 116 (5%) had CDI in the 90 days before candidemia (median: 10 days) and 60 (3%) had CDI following candidemia (median: 8 days). The median age of those with CDI-candidemia co-infection was 61 years and 100 (53%) were male. Compared with candidemia alone, the odds for CDI co-infection are significantly greater for public race (OR 1.41, 95% CI 1.05–1.90), those with diabetes (OR 1.68, 1.24–2.27), pancreatitis (OR 1.91, 1.01–3.61), or solid organ transplant (OR 4.15, 2.09–8.22). Those with co-infection had higher odds of certain healthcare exposures: hemodialysis (OR 2.27, 1.57–3.28), hospital stay in the past 90 days (OR 1.9, 1.37–2.64), ICU admission in the past 14 days (OR 1.78, 1.20–2.66), and central venous catheter (CVC) at the time of candidemia (OR 1.71, 1.19–2.40). There were no significant differences in 30-day mortality or in type of *Candida* species, although *C. parapsilosis* was less common in the co-infection group (8% vs. 13%).

**Conclusion.** Nearly one in ten patients with candidemia also had CDI co-infection. Black race, certain underlying conditions, hemodialysis, previous hospitalization, ICU stay, and the presence of a CVC were associated with co-infection. Clinicians should be vigilant for co-infection of CDI and candidemia, particularly in situations with associated risk factors.

**Disclosures.** W. Schaffner, Pfizer: Scientific Advisor, Consulting fee; Merck: Scientific Advisor, Consulting fee; Novavax: Consultant, Consulting fee; Dynavax: Consultant, Consulting fee; Sanofi Pasteur: Consultant, Consulting fee; Sanofi-pasteur: Consultant, Consulting fee; GSK: Scientific Advisor, Consulting fee; Novavax: Consultant, Consulting fee; Dynavax: Consultant, Consulting fee; Ige George, MD; Radha Rajasingham, MD; William Powderly, MD; David Boulware, MD, MPP;1 Washington University School of Medicine, Saint Louis, Missouri; Infectious Diseases & International Medicine University of Minnesota, Minneapolis, Minnesota; Division of Infectious Diseases, Washington University, St. Louis, Missouri; Division of Infectious Diseases and International Medicine, Department of Medicine, University of Minnesota, Minneapolis, Minnesota

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**Background.** Cryptococcosis affects 1 in 270 solid organ transplant (SOT) recipients with high mortality. In HIV-infected patients, cryptococcal antigen (CRAG) is detectable in blood weeks to months before symptomatic infection and screening is recommended. No screening guidelines exist for SOT recipients.

**Methods.** We performed a cost-effectiveness analysis of CRAG screening amongst SOT recipients. We estimated costs of screening from Medicare reimbursement of $16.49 for CPT 87899 (Infectious agent antigen detection by immunoassay). We determined the number at risk from a large cohort of 42,634 adult SOT recipients from ICD-9 CM billing data from HCUP State Inpatient Databases of Florida (2006–2012), New York (2006–2011), and California (2004–2010). Cost of screening was compared with the cost of inpatient hospitalization.

**Results.** Among 42,634 adult SOT recipients, 158 (0.37%) developed cryptococcosis at a median time of 15.5 months (range 0.1–80) after transplant. During the 43 month follow-up, there was approximately 2.5% annual mortality. The estimated cost of care for cryptococcal meningitis per person is approximately $70,000 in 2016 with current explosive cost of fluconazole at ~$29,000 per 2 weeks. Thus, the total estimated cost of hospital care in the cohort would be $11.0 million in 2016. In comparison, the cost to screen all 42,634 SOT recipients every three months would be $98,864, assuming CCRG screening could detect 75% of asymptomatic Cryptococcus neoformans prior to symptomatic disease requiring prolonged hospitalization, it would be approximately cost neutral ($11.5 million), and even cost saving if above 80% of hospitalizations are averted. Alternatively stated, for every one hospitalization avoided, 4245 deaths could be averted. Alternatively stated, for every one hospitalization avoided, 4245 deaths could be averted.

**Conclusion.** Assuming the ability of routine screening to identify 75% of patients who would develop invasive cryptococcosis, CRAG screening every 3 months among SOT recipients likely would be at least cost neutral to the healthcare system. Antecedent duration of cryptococcal antigenemia prior to symptomatic disease in Non-HIV/SOT cohorts to inform optimal screening intervals should be further studied. Prospective SOT cohorts should validate this approach to save lives in a cost-effective manner.

**Disclosures.** No reported disclosures.