ORAL ABSTRACT

109. Differences in Gram-Negative Antibiotic Susceptibility Among Patients Receiving Fecal Microbiota Transplant for *Clostridioides difficile*

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Session: 30. Healthcare Epidemiology: Hot Topics
Thursday, October 4, 2018: 8:45 AM

Background. Decreases in multidrug-resistant organism (MDRO) colonization and antibiotic resistance gene abundance have been reported after fecal microbiota transplantation (FMT), but data on clinical microbiology culture and susceptibility results after FMT are limited.

Methods. We retrospectively reviewed the available microbiology results for patients who underwent FMT for recurrent *Clostridioides difficile* infection (RCDI) at Emory University from July 7, 2012 until December 2017 and had microbiology results within 1 year pre- and post-FMT. Demographic and clinical characteristics were abstracted by trained reviewers, and statistical tests of differences in central tendency were tested with Wilcoxon signed-rank tests.

Results. Of 236 unique patients undergoing FMT during the study period, 18 had growth of Gram-negative bacteria on culture pre- and post-FMT. Of these, 8 had Gram-negative growth in urine culture (the most common site) pre- and post-FMT. Fourteen (14/18, 78%) patients were female, 4/18 (22%) were black, 14/22 (78%) were white, and 18/18 (100%) were non-Hispanic. The mean number of CDI episodes prior to first FMT was 4 (range 3–7 episodes). Differences in counts of susceptible, intermediate, and resistant susceptibility test results before and after FMT are shown in Figures 1 and 2. Although a trend in reduction of resistant reports is visually suggested, this was not statistically significant by Wilcoxon signed-rank testing ($P = 0.10$ for all cultures, $P = 0.21$ for urine). Ten patients had pre-FMT micro results and no micro results after FMT, but reduction of count of infectious syndromes in FMT could not be tested with this study design. Abstraction of viral quantitative PCR results did not suggest clinical recognition of new infection or reactivation of viruses after FMT.

Conclusion. FMT may reduce clinical burden of antimicrobial resistance, but statistically significant differences in resistance were not detected in this study. Further study with RCTs is needed.

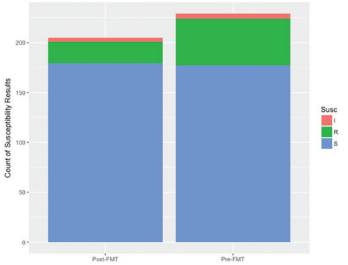

Figure 1: Gram-negative culture results from all sites within 1-year pre- and post-FMT, 2012–2017.

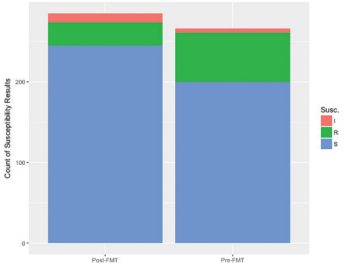

Figure 2: Gram-negative urine culture results within 1-year pre- and post-FMT, 2012–2017.

Disclosures. **All authors:** No reported disclosures.

Open Forum Infectious Diseases® 2018;1(S1):S1–75

DOI: 10.1093/ofid/ofy209

110. The Burden and Preventability of Sepsis-Associated Mortality in 6 US Acute Care Hospitals

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Session: 30. Healthcare Epidemiology: Hot Topics
Thursday, October 4, 2018: 8:45 AM

Background. Sepsis is considered a leading cause of preventable death, but the actual burden of sepsis mortality is difficult to measure using administrative data or death certificates. We analyzed the prevalence, underlying causes, and preventability of deaths due to sepsis in acute care hospitals using detailed medical record reviews.

Methods. We randomly selected 577 adult patients who died in-hospital or were discharged to hospice in 2014–2015 at 6 US academic and community hospitals for medical record review. Cases were reviewed by experienced clinicians for sepsis during hospitalization (using Sepsis-3 criteria), terminal conditions on admission (defined using hospice-qualifying criteria), immediate and underlying causes of death, and suboptimal sepsis care (delays in antibiotics, inappropriate antibiotic therapy, inadequate source control, or other medical errors). The overall preventability of death was rated on a 6-point Likert scale (from definitely not preventable to definitely preventable) taking into account comorbidities, severity of illness, and quality of care.

Results. Sepsis was present in 302/577 (52%) hospitalizations ending in death or discharge to hospice and was the immediate cause of death in 199 cases (35%) (Figure 1A). Underlying causes of death in sepsis patients included solid cancer (21%) and chronic heart disease (15%), and hematologic cancer (10%) (Figure 1B). The median age of sepsis patients who died was 73 (IQR 62–84). Terminal conditions were present in 122/302 (40%) sepsis deaths, most commonly end-stage cancer (26% of cases). Suboptimal care was identified in 68 (23%) of sepsis deaths, most commonly delays in antibiotics (11% of cases). However, only 4% of sepsis deaths were definitely or likely preventable and an additional 8% were considered possibly preventable with optimal clinical care (Figures 2 and 3).

Conclusion. Our findings affirm that sepsis is the most common cause of death in hospitalized patients. Most patients that died with sepsis were elderly with severe comorbidities, but up to 1 in 8 sepsis deaths were felt to be potentially preventable with better hospital-based care. These findings may inform resource allocation and expectations surrounding the impact of hospital-based sepsis treatment initiatives.

Figure 1. Immediate and Underlying Causes of Death