Table 1:  *H. influenzae*

| Isolate Data | gRT-PCR Results |
|---------------|-----------------|
| Strain | CRβ | Colistin (μg/mL) | OXA-1 (μg/mL) | PMQR (μg/mL) | MIC (μg/mL) | CV |
| NP 9003 | 756 | 10 | >128 | 2 | 2 | 0.38 |
| NP 9003 | 80 | 160 | 1.0 | <0.1 | <0.1 | 0.29 |
| NP 5307 | 125 | 0.25 | <0.1 | <0.1 | <0.1 | 0.125 |

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708. Incidence and Relatedness of Carbapenemase-Producing Carbapenem-Resistant Enterobacteriaceae Infections in Previously Colonized or Infected Patients

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Session: 67. Resistance Mechanisms: Gram-Negative

Thursday, October 4, 2018: 12:30 PM

Background. In patients with history of carbapenemase-producing carbapenem-resistant Enterobacteriaceae (CPCRE), the need for CPCRE targeted treatment in subsequent sepsis episodes is unclear. We determine the likelihood of CPCRE infection (CI) in patients previously colonized (PC) or infected (PI) with CPCRE and relatedness of both episodes.

Methods. Adult inpatients with CPCRE isolated from any site in June 2012–May 2014 at a tertiary-care hospital were prospectively followed for 2 years to assess for subsequent CI. Bacteria isolates from paired episodes were subjected to Illumina HiSeq2500 and multilocus sequence typing.

Results. Six of 25 (24%) PI and 11 of 152 (7%) PC patients had subsequent CI—overall incidence was 9.6%. KP was most commonly isolated. While bacteria species differed in four cases, the carbapenemase type was conserved in all but one. Those with initial bacteremia, intra-abdominal (IA) or lung infection (n = 6) were five times more likely to develop CI. Only 33% of PI vs. 62% of PC patients had subsequent infections of the same clonal group. For PC, KP (OR 9.3) and OXA carbapenemase (OR 12.8) significantly predicted for subsequent CI. In PI, chronic renal failure requiring dialysis (OR 70.2) and KPC enzyme (OR 14) were predisposing factors. In hospital mortality was observed in six cases.

710. Increased Clinical Failure Rates Associated with Reduced Metronidazole Susceptibility in Clostridioides difficile

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Background. Reduced metronidazole susceptibility is common among Clostridioides difficile isolates. However, the clinical significance of this is unclear. As part of a larger study, we evaluated the relationship of reduced metronidazole susceptibility to clinical failure rates and treatment outcomes in patients with Clostridioides difficile infection (CDI).

Methods. Stool samples tested positive for C. difficile and 203 treatment courses were assessed. The prevalence and clinical outcomes of metronidazole non-susceptible C. difficile were compared between those with reduced metronidazole susceptibility (MIC ≥ 2 μg/mL) versus those with susceptible (MIC < 2 μg/mL) C. difficile.

Results. Reduced susceptibility was associated with increased failure rates for antibiotic courses and higher days of hospitalization. Reduced metronidazole susceptibility was associated with higher failure rates in patients with initial Clostridioides difficile infection requiring hospitalization (12.3% vs. 4.8%) and increased days of hospitalization (5.9 vs. 4.4 days). Reduced susceptibility to metronidazole was associated with a 6.1-fold increased risk of failure (95% CI 1.3–28.9). The failure rate was 3.3% for MIC < 2 μg/mL versus 21.2% for MIC ≥ 2 μg/mL (p = 0.011). Reduction in susceptibility was associated with increased hospitalization days (5.9 vs. 4.4 days, p = 0.015).

Conclusion. Reduced metronidazole susceptibility is associated with increased clinical failure rates in patients with Clostridioides difficile infection.