

Conclusion. This is the largest data evaluating microbiology of infected walled off necrosis. Organisms isolated are mostly colonizers of skin and gastrointestinal tract. Positive cultures were seen more in obese and elder patients. Clinical correlation is needed when deciding whether to treat these organisms or not.

Disclosures. R. Kozarek, Boston Scientific: Investigator, Research support

1193. Risk Factors for the Development of Bacteremia in Previously Healthy Children with Non-typhoidal Salmonella Gastroenteritis

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Session: 146. Enteric Infections and Diagnostics

Friday, October 6, 2017: 12:30 PM

Background. Non-typhoidal Salmonella (NTS) causes approximately 1.2 million illnesses per year in the United States. There are very few pediatric studies which has investigated the risk factors for NTS bacteremia in healthy children with NTS gastroenteritis (NTS-AGE).

Methods. This was a retrospective study of children admitted to Texas Children's Hospital, Houston, TX, with NTS-AGE from 2007–2016. Exclusion criteria included: patients aged ≤ 3 m or > 18 years, immunodeficiencies, hemoglobinopathies, extraintestinal manifestations or those in whom blood cultures were not obtained. Demographics, clinical and laboratory data were collected from electronic medical records. Patients with NTS bacteremia (NTS-B) were compared with patients who were non-bacteremic (NTS-NB).

Results. Of 350 patients reviewed, 83 patients met inclusion criteria: 53 with NTS-B and 30 NTS-NB. The median age of diagnosis was 1.58 years (range 3.5 months–18 years). Thirty-nine patients (47.0%) were female and 44 (53.0%) were male. Majority of patients were non-Hispanic White ($n = 70$; 84.3%). The most common serotype was Salmonella Group C ($n = 41$ (49.4%). There was no difference in risk factors between NTS-B vs. NTS-NB in terms of age, duration of diarrhea prior to admission, travel or pet exposure, prior antibiotic exposure or white blood cell count at presentation. Duration of fever prior to admission was statistically significant with median duration for NTS-B being 6.11 days compared with NTS-NB at 1.97 days ($P = 0.000006$). There was an increased trend for bacteremia in males and Salmonella Group C bacteremia ($P = 0.07$ and $P = 0.08$ respectively).

Conclusion. To our knowledge this is first pediatric study in the United States to evaluate risk factors for NTS bacteremia in healthy children with NTS-AGE. Duration of fever prior to admission was associated with increased risk of NTS-B along with increased trend with males and infection with Group C Salmonella. These risk factors should prompt clinicians to monitor patients with NTS-AGE closely and help in deciding whether antimicrobials are warranted or not.

Disclosures. All authors: No reported disclosures.

1194. Clinically Important Resistance among Salmonella enterica Serotype Typhi Isolates—United States, 2003–2015

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Session: 146. Enteric Infections and Diagnostics

Friday, October 6, 2017: 12:30 PM

Background. *Salmonella* Typhi (Typhi) causes typhoid fever, accounting for an estimated 5,700 illnesses and 623 hospitalizations per year in the United States. Most infections are acquired during travel to regions outside the United States where typhoid fever is prevalent and antimicrobial resistance is a problem. Fluoroquinolones (e.g., ciprofloxacin) are considered the treatment of choice for susceptible Typhi infections due to their superior ability to concentrate intracellularly and in bile, however, nonsusceptibility has been associated with treatment failure or delayed response. Azithromycin and ceftriaxone are treatment options. We describe antimicrobial susceptibility among Typhi isolates in the United States and the implications for management.

Methods. The National Antimicrobial Resistance Monitoring System at CDC conducts susceptibility testing on all Typhi isolates submitted by public health laboratories. We used broth microdilution to determine minimum inhibitory concentrations (MICs) to agents representing 9 antimicrobial classes and categorized isolates according to criteria from the Clinical and Laboratory Standards Institute. We defined ciprofloxacin nonsusceptibility as MIC ≥ 0.12 $\mu\text{g}/\text{mL}$, ciprofloxacin resistance as MIC ≥ 1 , azithromycin resistance as MIC ≥ 32 , and ceftriaxone resistance as MIC ≥ 4 .

Results. From 2003–2015, isolates were tested from 4,550 patients; 2,760 (61%) were ciprofloxacin nonsusceptible, 4% were ciprofloxacin resistant. One isolate was azithromycin resistant and none were ceftriaxone resistant. Ciprofloxacin nonsusceptibility increased from 39% in 2003 to 66% in 2015; resistance increased from 0.3% to 8%. Median age of patients was 23 years (range 1–99 years), 53% were male, most were from the Northeast (33%) or the West (29%), and 74% had an isolate from blood.

Conclusion. Two thirds of Typhi isolates exhibited ciprofloxacin nonsusceptibility, which has increased over the last decade, and full resistance is increasing. Clinicians should be aware of high rates of fluoroquinolone nonsusceptibility when selecting empiric therapy and should tailor antimicrobial treatment to susceptibility results when feasible. Azithromycin and ceftriaxone remain important treatment options.

Disclosures. All authors: No reported disclosures.

1195. Impact of Fecal Microbiota Transplantation on Digestive Tract Colonization due to Carbapenem-resistant Enterobacteriaceae and Vancomycin-resistant Enterococci

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Session: 146. Enteric Infections and Diagnostics

Friday, October 6, 2017: 12:30 PM

Background. Fecal Microbiota Transplantation (FMT) has proved to be an efficient therapy for recurrent *C. difficile* infection. Its indication is currently discussed for the decolonization of Multidrug-resistant organisms (MDRO) on the basis of mice experiments. Two recent publications suggest that it could be an efficient strategy for patients colonized with digestive MDRO colonization but few data are available for Carbapenem-Resistant Enterobacteria (CRE) and Vancomycin-Resistant Enterococcus (VRE) colonization.

Methods. We performed a FMT among patients colonized by CRE or VRE documented by at least 3 nonconsecutive positive swabs (including one in the week prior to the FMT).

Procedure: 2 days prior to the FMT, patients received a proton pump inhibitor and a naso-duodenal tube was inserted to perform a bowel lavage with X-prep. FMT was performed with frozen feces from 4 donors previously screened for potential diseases using 5 syringes of 50 cc of feces diluted with saline. Patients were discharged after 24h and benefited of outpatient control swabs (PCR + culture) on day 7, 14, 21, 28 and each month during 3 months in order to assess the decolonization. The study is registered at ClinicalTrials.gov (NCT03029078).

Results. Seventeen individuals were included. Mean age was 69 ± 12.7 (SD) years. Eight patients were positive for CRE (KPC, OXA48 or NDM-1) and 9 for VRE.

All suffered from severe underlying condition (hemodialysis, dementia, cirrhosis) or chronic wounds. Median functional autonomy scale was evaluated using the French Iso-Resources Groups (GIR)=4/6 IQR[3–6] supporting they were dependent persons.

At 1-month follow-up, 3/8 patients were free from CRE and 5/9 from VRE. At 3-month follow-up, 3/8 patients were still free from CRE whereas 7/8 were free from VRE, considering one death from cirrhosis.

Moreover, one of them received antibiotics during a week for a hospital-acquired infection a long time after FMT. No adverse events were reported.

Conclusion. FMT seems to be an attractive option to eradicate colonization of MDRO, especially for VRE. Limited data are available in the literature to determine response factors. Meanwhile its efficacy is moderate; it provides an alternative solution to quarantine for fragile and frequently hospitalized patients. More data and a controlled trial are required.

Disclosures. All authors: No reported disclosures.

1196. The Global Burden of Shigella and Enterotoxigenic E. coli: Results from the Global Burden of Disease Study 2016

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Session: 146. Enteric Infections and Diagnostics

Friday, October 6, 2017: 12:30 PM

Background. Diarrhea is the seventh leading cause of death globally, responsible for more than 1,600,000 deaths in 2016 and nearly 90% of these deaths occurred in sub-Saharan Africa and South Asia. The Global Burden of Disease Study (GBD) is an annual effort to produce and refine estimates of diarrheal disease burden attributable to *Shigella* spp., enterotoxigenic *Escherichia coli* (ETEC), and other enteric pathogens.

Methods. We used a counter-factual approach to estimate deaths, incidence, years of life lost (YLLs), years living with disability (YLDs), and total disability adjusted life years (DALYs) attributable to diarrhea and its etiologies, including *Shigella* and ETEC. To estimate the burden of diarrhea etiologies, we conducted a systematic review of the proportion of diarrheal cases positive for each pathogen and modeled these data using a Bayesian meta-regression tool called DisMod-MR. This tool generates estimates of the pathogen distribution for national and some subnational geographies, all age groups, and for both sexes from 1990 to 2016. We used these estimates, in conjunction with odds ratios for diarrhea given pathogen detection from the Global Enteric Multicenter Study, to calculate the population attributable fraction for each pathogen.

Results. In 2016, *Shigella* was responsible for 75,000 deaths among children under-5 and 270,000 deaths among all ages and ETEC was responsible for 22,000 deaths among children under-5 and 60,000 deaths among all ages. *Shigella* and ETEC ranked second and fourth with regard to pathogen contributions to global diarrheal deaths.

Conclusion. The global burden of disease attributable to *Shigella* and ETEC is substantial. GBD 2016 estimates on the age- and location-specific impact of *Shigella* and ETEC enable evidence-based decision making regarding interventions to reduce the burden of these pathogens. Our findings call for accelerated efforts for the development of vaccines against ETEC and *Shigella*.

Disclosures. All authors: No reported disclosures.