126. Comparison of Fidaxomicin and Vancomycin for Recurrent Clostridium difficile Infections in Outpatients

Friday, October 6, 2017: 12:30 PM

Background. Fecal microbiota transplant (FMT) is an effective treatment for relapsing Clostridium difficile infection (CDI). With more widespread use of this intervention, variable cure rates (70-95%) have been observed. We conducted this study to compare cure rates of both delivery methods and found that NGT delivery is cost-effective given its low risk and simplicity.

Methods. A retrospective chart review was performed to identify all hospitalized patients who received fidaxomicin and vancomycin for the period 2011-2015. Inclusion criteria included patient age ≥18 years, stool positive PCR test for C. difficile and being treated ≥10 days of either fidaxomicin or vancomycin orally. Clinical recurrence was defined as a return of diarrhea, a positive test for C. difficile toxin A and B and a need for retreatment for CDI within 90 days of cessation of therapy.

Results. A total of 55 (52.7% male) and 74 (51.4% male) cases met inclusion criteria in the FMT and V groups respectively. The mean age was 65.9 ± 1.88 and 63.7 ± 1.86 years in group F and V respectively (P = 0.4). Median length of hospitalization was 14 and 9 days for F and V respectively (P = 0.6). Both groups had similar proportions on the following variables: immunosuppression (V 36.5% vs. F 36.4%; P = 0.9), ≥ 1 prior episode of CDI (V 59.5% vs. F 61.8%; P = 0.8), sepsis on admission (V 29.7%; F 36.4%; P = 0.4), the use of any antibiotic during the last 30 days (V 74.3%; 71%, P = 0.7), and treatment with additional anti-CDI therapy (V 24.3%; F 29.1%; P = 0.5). CDI recurrence rate was 24% (V) and 40% (F; P = 0.057). The 90-day mortality rate was 4.1% in the vancomycin group and 10.9% in the fidaxomicin group (P = 0.13).

Conclusion. Fidaxomicin had a higher recurrent CDI than vancomycin in this tertiary medical center.

Disclosures. All authors: No reported disclosures.

126. Factors Affecting Effectiveness of Fecal Microbiota Transplant

Friday, October 6, 2017: 12:30 PM

Background. Fecal microbiota transplant (FMT) is an effective treatment for relapsing Clostridium difficile infection (CDI). With more widespread use of this intervention, variable cure rates (70-95%) have been observed. We conducted this study to identify specific patient- and procedure-level factors affecting FMT effectiveness, hypothesizing that those patients with higher comorbidity, inadequate bowel preparation, and shorter retention of transplant would fail more frequently.

Methods. A retrospective chart review was performed to identify all hospitalized patients who received fidaxomicin and vancomycin for the period 2011-2015. Inclusion criteria included patient age ≥18 years, stool positive PCR test for C. difficile and being treated ≥10 days of either fidaxomicin or vancomycin orally. Clinical recurrence was defined as a return of diarrhea, a positive test for C. difficile toxin A and B and a need for retreatment for CDI within 90 days of cessation of therapy.

Results. A total of 55 (52.7% male) and 74 (51.4% male) cases met inclusion criteria in the FMT and V groups respectively. The mean age was 65.9 ± 1.88 and 63.7 ± 1.86 years in group F and V respectively (P = 0.4). Median length of hospitalization was 14 and 9 days for F and V respectively (P = 0.6). Both groups had similar proportions on the following variables: immunosuppression (V 36.5% vs. F 36.4%; P = 0.9), ≥ 1 prior episode of CDI (V 59.5% vs. F 61.8%; P = 0.8), sepsis on admission (V 29.7%; F 36.4%; P = 0.4), the use of any antibiotic during the last 30 days (V 74.3%; 71%, P = 0.7), and treatment with additional anti-CDI therapy (V 24.3%; F 29.1%; P = 0.5). CDI recurrence rate was 24% (V) and 40% (F; P = 0.057). The 90-day mortality rate was 4.1% in the vancomycin group and 10.9% in the fidaxomicin group (P = 0.13).

Conclusion. Fidaxomicin had a higher recurrent CDI than vancomycin in this tertiary medical center.

Disclosures. All authors: No reported disclosures.

126. Cost Effectiveness Analysis of Fecal Transplant Delivery Methods for Recurrent Clostridium difficile Infections in Outpatients

Friday, October 6, 2017: 12:30 PM

Background. Clostridium difficile infection (CDI) accounts for more than $1 billion annually in US health care costs. Recurrent CDI (RCID, recurrence within 8 weeks of initial treatment) contributes substantially to this cost. The objective of this study was to compare the cost effectiveness of FMT delivered via colonoscopy vs. blind nasogastric tube (NGT) in outpatients. We hypothesized that FMT by NGT would be cost-effective given its low risk and simplicity.

Methods. A decision-analytic simulation model compared the cost effectiveness of FMT by colonoscopy vs. NGT from a third-party payer perspective. Our base case cure rates were derived from a cohort receiving outpatient RCIDT treatment at our institution. Cure was defined as resolution of symptoms for ≥ 90 days. Procedural cost and consultation was defined by average reimbursement to a large southeastern medical center in 2016 USD based on current procedural terminology (CPT) codes, and cost of disease states were defined in published literature. Health states were defined by quality of life year (QALY) based on published literature. Incremental Cost Effectiveness ratio (ICER) was defined as the cost per additional QALY gained. We assumed a 90 day horizon. One-way sensitivity analysis was performed on all variables using ranges defined by published literature. We used TreeAge Software (Williamstown, MA).

Results. In the base case, FMT by colonoscopy was dominant (more effective and less costly) than NGT, with cost of $1,568/QALY vs. $1,910/QALY respectively. Cure rates of FMT by colonoscopy vs. NGT (100% vs. 87%) had the largest impact on ICER based on one-way sensitivity analysis. Therefore, a subsequent two-way sensitivity analysis was conducted to compare cure rates of both delivery methods and found that NGT delivery is cost effective as cure rates approach colonoscopy delivery cure rates within 5 percentage points.

Conclusion. Contrary to our hypothesis, our decision model supports FMT by colonoscopy as the preferred delivery method in outpatients with RCID relative to NGT delivery. Additional costs of colonoscopy delivery are offset by the improved cure rate leading to lower overall costs. As cure rates from NGT delivery are optimized, NGT may become the preferred FMT delivery method.

Disclosures. All authors: No reported disclosures.

126. Ribotypes Matter, Significance of Clostridium difficile Ribotypes in Cancer Patients with Diarrhea

Friday, October 6, 2017: 12:30 PM

Background. Cancer patients are at increased risk for Clostridium difficile infection (CDI) due to frequent health care contact, chemotherapy, use of antibiotics, and immunosuppression. Distinct ribotypes are associated with CDI adverse outcomes. Gentamicin- and fluoroquinolone-resistant C. difficile strains are the predominant ribotypes in many hospitals. We examined the contribution of C. difficile ribotypes to CDI severity, response to therapy and outcomes in this population.

Methods. Demographic and clinical data were collected from 90 cancer patients with a first episode or first recurrence of CDI identified by two-step PCR followed by EIA for A/B toxins. Fluorescent PCR ribotyping (FPCR) was performed on fecal isolates. We identified 27 distinct ribotypes between October 2016 and January 2017. Clinical outcomes were studied in three FPCR subgroups. Group I (GI; n = 27) included 10 Group I (GI, n = 17) included virulent phenotypes and 10 Group II (GII, n = 16) included the rest. Treatment failure was defined as no response after at least 3 days of a CDI treatment regimen. CDI severity was determined using Zan’s criteria, presence of bacteremia and ICU stay.

Results. The proportion of patients ≥50 yrs. old, with health care onset CDI (31%), primary CDI (92.2%), and on active chemotherapy (70%) was similar across
Figure 1. Responders to RBX2660 have a greater change in txa abundance from baseline relative to non-responders at 30 days. Dirichlet-Multinomial parameter pi presented as mean (95% CI).

Disclosures. S. Khanna, Rebiotix, Inc.: Scientific Advisor, Consulting fee; K. Blount, Rebiotix, Inc.: Employee, Salary; C. Jones, Rebiotix, Inc.: Employee, Salary; B. Shannon, Rebiotix, Inc.: Research Contractor, Consulting fee; S. Carter, Rebiotix, Inc.: Research Contractor, Consulting fee

1267. Successful Response to Microbiota-Based Drug RBX2660 in Patients with Recurrent Clostridium difficile Infection is Associated with More Pronounced Alterations in Microbiome Profile

Sahil Khanna, MBBS, MS; 5 Ken Blount, PhD; 6 Courtney Jones, BS; 5 Bill Shannon, PhD, MBA; 5 and Sharrina Carter, PhD, 5 6 Gastroenterology and Hepatology, Mayo Clinic, Rochester, Minnesota; 7 Rebiotix, Roseville, Minnesota, 8 BioRankings LLC, St. Louis, Missouri

Session: 148. C. difficile: From the Bench to Bedside
Friday, October 6, 2017: 12:30 PM

Background. Recurrent Clostridium difficile infections (rCDI) are associated with decreased diversity and altered intestinal microbiome compared with healthy patients. RBX2660, a standardized microbiota-based drug, is designed to restore microbiome diversity and composition in patients. The effect of RBX2660 on CDI patient microbiomes was evaluated by comparing pre- and post-treatment samples from PUNCH CD 2–4, a randomized, double-blind, placebo-controlled study.

Methods. rCDI subjects were randomized to receive blinded treatments of 2 doses of RBX2660 (Group A), 2 doses of placebo (Group B), or 1 dose each of RBX2660 and placebo (Group C), by enema 7 days apart. Subjects submitted stool samples at baseline, day 3, 7, 30, and 60 after treatment. Stool samples from responders to RBX2660 treatment per protocol defined as the absence of C. difficile for 8 weeks after treatment were compared with non-responders.

Results. Baseline patient microbiomes were similar across response groups. RBX2660 treatment shifted the relative microbiome densities with taxa-specific increase in Bacteroidia, Clostridia, and decrease in Gamma-proteobacteria abundance. A larger shift from baseline microbiome was seen in responders to RBX2660 compared with non-responders (Figure 1). Microbiome changes in responders were durable to 60 days. RBX2660 treatment increased Shannon and Simpson diversity at 7 days post-treatment in responders but not in non-responders (P < 0.05).

Conclusion. RBX2660 treatment shifts patient intestinal microbiomes with greater alterations seen in those with a successful clinical outcome.

Funded by Rebiotix Inc., Roseville, MN.

Disclosures. Y. Golan, Merck & Co., Inc.: Grant Investigator, Scientific Advisor and Speaker's Bureau, Research support and Speaker honorarium: Pfizer; Scientific Advisor, Speaker honorarium; Allergab: Grant Investigator and Scientific Advisor, Research grant and Speaker honorarium; The Medicines Company: Scientific Advisor, Speaker honorarium; Seres Pharmaceuticals: Scientific Advisor, Speaker honorarium; H. L. DuPont, BioK International, Salix: Consultant, Consulting fee; University Rebiotix, Seres, Takeda: Grant Investigator, Grant recipient; F. Aldomiro, BMS & ViV: Scientific Advisor, Consulting fee; MSD, ViV, Astellas & Pfizer: Part-time in Clinical Trials, Research support; E. H. Jensen, Merck & Co., Inc.: Employee, may own stock/hold stock options in Company; M. E. Hanson, Merck & Co., Inc.: Employee, may own stock/hold stock options in the Company; M. B. Dorr, Merck & Co., Inc.: Employee and Shareholder, may own stock/hold stock options in the Company

1268. Changes to the Composition of the Gastrointestinal Microbiome after Probiotics for Clostridium difficile Infection in Adults

Shoshannah Eggers, BS; 5 Travis De Wolfe, MS; 4 Anna Barker, BA; 5 Megan Duster, MT(ASCP); Kimberly Dill-McFarland, PhD; 1 Garret Suen, PhD; 5 and Nasia Safdar, MD, PhD, FISHIA; 5 Department of Population Health Sciences, School of Medicine and Public Health, University of Wisconsin — Madison, Madison, Wisconsin, 2Department of Food Science, University of Wisconsin — Madison, Madison, Wisconsin, 3Division of Infectious Diseases, School of Medicine and Public Health, University of Wisconsin – Madison, Madison, Wisconsin, 4Department of Bacteriology, College of Agriculture and Life Sciences, University of Wisconsin – Madison, Madison, Wisconsin

Session: 148. C. difficile: From the Bench to Bedside
Friday, October 6, 2017: 12:30 PM