272. Impact of Matrix-Assisted Laser Desorption Ionization Time-of-Flight Mass Spectrometry (MALDI-TOF MS) on Time to Optimal Antimicrobial Therapy in Pediatric Patients with Positive Blood Cultures at Children's Cancer Hospital-Egypt (CCH-E-57357)

Mervat Elanany, MD; Naglaa Ahmed, PharmB, MSc; Ahmed El Zeiny, PharmB, Diploma Pharm; Mohamed Hashem, MBChB, MSc; and Lobna Shalaby, MD.

1 Clinical Microbiology Department, Children's Cancer Hospital Egypt (CCH-E-57357), Cairo, Egypt; 2 Department of Pharmaceutical Services, Children's Cancer Hospital Egypt (CCH-E-57357), Cairo, Egypt; 3 Research Department, Children's Cancer Hospital Egypt (CCH-E-57357), Cairo, Egypt; 4 Infectious Disease Department, Children's Cancer Hospital, Egypt (CCH-E-57257), Cairo, Egypt

Session: 53. Pediatric Antimicrobial and Diagnostic Stewardship

Thursday, October 4, 2018: 12:30 PM

Background. The clinical microbiology laboratory at CCH-E-57357 implemented the MALDI-TOF MS for pathogen identification directly from positive blood cultures in 2016. Prior to that conventional method was used. The purpose of this study was to evaluate the impact of using the MALDI-TOF MS on the time to pathogen identification, time to antimicrobial treatment, and on the clinical outcomes for pediatric patients at CCH-E-57357.

Methods. This was a retrospective, descriptive, observational study design. Data were collected for children admitted to CCH-E-57357 with positive blood cultures identified by traditional culture method from July 1, 2015 to September 30, 2015 and by MALDI-TOF MS from July 1, 2016 to September 30, 2016. Outcome measures included time from reporting of a positive blood culture until organism identification and susceptibilities, time to optimal antimicrobial treatment, and clinical outcome across the two study periods (before and after the use of MALDI-TOF MS).

Results. A total of 172 positive blood cultures were included in the analysis: 64 before and 108 after the implementation of MALDI-TOF MS. The mean time to blood cultures positivity detected by BACTEC system was similar in both time periods, while the mean time to isolated organism identification decreased significantly by 52% from 60 to 29 hours ($P = 0.001$) after the use of MALDI-TOF MS. Concurrently, the time to susceptibilities was significantly reduced by 30% from 82 to 57 hours ($P = 0.001$). Thirty-day all-cause mortality was lower after the use of MALDI-TOF; but the difference was not statistically significant (9.2% vs. 16.9%, $P = 0.122$).

Conclusion. The study concluded that applying MALDI-TOF technology significantly reduced the time needed to pathogen identification and to initiate optimal antimicrobial therapy. This will eventually improve patient clinical outcomes, and reduce mortality in our immunocompromised pediatric population.

Disclosures. All authors: No reported disclosures.

273. Effects of a Rapid Meningitis/Encephalitis Panel on Antimicrobial Use and Outcomes in Children

Danielle McDonald, PharmD; Christina Gagliardo, MD; and M. Cecilia de Penitima, MD, MPH.

1 Pharmacy, Atlantic Health System, Morristown, New Jersey; 2 Pediatrics, Atlantic Health System, Morristown, New Jersey; 3 Pediatrics, Thomas Jefferson University, Philadelphia, Pennsylvania

Session: 53. Pediatric Antimicrobial and Diagnostic Stewardship

Thursday, October 4, 2018: 12:30 PM

Background. Rapid molecular diagnostic assays are increasingly used to guide effective antimicrobial therapy. Data on their effectiveness to decrease antimicrobial use have been limited and varied. We aimed to assess the impact of the implementation of the FilmArray Meningitis Encephalitis Panel (MEP) on antimicrobial (AM) use and outcomes in children.

Methods. In an observational, retrospective study performed at Atlantic Health System (NH), we reviewed medical records of patients ≥2 years of age evaluated for meningitis/encephalitis who received empiric AM therapy between January 1, 2015 and September 30, 2018. Oncology and Neurosurgery patients were excluded. FilmArray MEP (BioFire Diagnostics, Salt Lake City, UT) was incorporated November 1, 2016. The primary outcome was to evaluate duration of empiric AM therapy measured as days of therapy (DOT). Secondary outcomes included length of stay (LOS), all-cause mortality, and 30-day readmission rates.

Results. Ninety-nine patients with negative CSF, blood, and urine cultures who received empiric AM therapy were included in the preliminary analysis. Patient characteristics are depicted in Table 1. The median duration of antibiotic (AB) therapy prior to the implementation of the MEP was four DOT (IQR 6) vs. two DOT (IQR 4). During the pre-implementation era, the median DOT for individual AB was three (IQR 3) for third-generation cephalosporins (GCSs) (n = 23), three (IQR 1) for ampicillin (AMP) (n = 19), and two (IQR 1) for vancomycin (VAN) (n = 8). Median DOT when MEP was performed was two (IQR 1) for GCSs (n = 28), two (IQR 1) for AMP (n = 18), and two (IQR 1) for VAN (n = 6). Few patients received acyclovir (ACY), with a median DOT of four (IQR 0) and two (IQR 2) before (n = 4) and after MEP (n = 8), respectively. Secondary outcomes are shown in Table 2.

Disclosures. All authors: No reported disclosures.

274. Diagnostic Stewardship for Positive Endotracheal Cultures in a Pediatric Intensive Care Unit (PICU): Reassessing the Role of Neutrophil Quantification in Clinician Decision-Making

Srirsha Yalamanchi, MD; Lisa Saiman, MD, MPH; and Philip Zachariah, MD, MS.

1 Department of Pediatrics, Columbia University Medical Center, New York, New York; 2 Department of Infection Prevention and Control, New-York Presbyterian Hospital, New York, New York

Session: 53. Pediatric Antimicrobial and Diagnostic Stewardship

Thursday, October 4, 2018: 12:30 PM

Background. Quantitative or semiquantitative assessment of neutrophils (microbiologic purulence-MP) is routinely reported for endotracheal aspirate cultures, but is not well standardized. The association of MP with symptoms of ventilator-associated infections or its role in guiding antibiotic therapy has not been well studied in the pediatric population. We examine MP as an independent predictor of antibiotic treatment and assess its association with clinical symptoms and ventilator-days.

Methods. Charts of children with positive endotracheal cultures sent from January to December 2016 from three PICUs were reviewed. The outcome variable was antibiotic administration for ≥5 calendar-days that targeted organisms identified in the culture. The predictor variable was MP defined as a neutrophil count reported as moderate/many by the clinical microbiology laboratory. Covariates included demographics, comorbidities, including immunosuppression and recent surgery; changes in vital signs, respiratory support (including ventilator settings), and laboratory values (e.g., WBC count, C-reactive protein). Multivariable logistic regression was used to model the outcome.

Results. Of 361 positive endotracheal cultures in the cohort, 81 (22.6%) were treated with targeted antibiotics. Culture reports with MP were treated more frequently (36% vs. 10%). MP was the strongest predictor for ≥5 calendar-days of antibiotics (OR 3.3, 95% CI 1.6–6.8) followed by fever (OR 2.0, 95% CI 1.0–4.1), or increased respiratory support (OR 2.3, 95% CI 1.2–4.3). Compared with patients with MP reported as moderate/many, those without MP had similar rates of fever/hypothermia (22% vs. 17%) and increased respiratory support (35% vs. 28%). Reported MP was lower with longer ventilator duration at the time of sampling (Figure 1).

Disclosures. All authors: No reported disclosures.