95. Assess reasons for continuing antibiotics in persons with positive respiratory viruses PCR in the emergency room.

rawan kassar, MD; nandini dandukuri, associate professor; jean–Marc troquet, MD; Charles Frenette, MD; McGill, montreal, Quebec, Canada; McGill, Montreal, Quebec, Canada; McGill University Health Centre, Montreal, Quebec, Canada, Montreal, QC, Canada

Session: P-4. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

Background: Respiratory tract infections remain one of the major reasons for inappropriate antibiotic usage. The multiplex PCR respiratory viral panel improves the diagnostic ability of viral causes of RTI and have been advocated as a useful stewardship tool. We sought to evaluate factors leading to continued antibiotic following a positive respiratory viral PCR and to evaluate the impact of a targeted antimicrobial stewardship intervention on antibiotic use.

Methods: In this Quasi experimental study, adult patients presenting to RVH ER with positive respiratory PCR from January 13 2020 to February 27 2020 were reviewed. Patient demographics, clinical, comorbidities, laboratory and radiology reports, antibiotic and antiviral usage before and after test were recorded. For patients without microbiological or radiological evidence of bacterial infection, a standard questionnaire was administered to treating physician. Antibiotic prescribing rate before and following a positive PCR and antibiotic discontinuation following ASP questionnaire was tracked.

Results: During the study period, 147 adult patients presented to the ER with positive respiratory PCR. Among the study population, antibiotic prescription rate was 49% prior to test result. Influenza was the most common respiratory virus isolated (89/147). Following the respiratory viral PCR, antibiotics were stopped 39% and continued in 51 % by the treating physician. Main reasons for antibiotic continuation included concurrent bacterial infection/30 (pneumonia 9/30), COPD exacerbation 5/30, febrile neutropenia (5/30) and hemodynamic instability(4/30). Antibiotics were continued without obvious indications in 15 patients and were targeted for intervention. Overall 66% (10/15) of ASP interventions were accepted and antibiotics discontinued. Overall all antibiotics were discontinued in 53 % of patients in whom they were initiated pretest result.

Conclusion: This study shows that positive respiratory virus PCR is very useful as it led to discontinuation of antibiotics by treating physician in 40 % and further 13% by an antibiotic stewardship intervention. Adding a stewardship intervention after test result further adds reduction to antibiotic usage.

Disclosures: All Authors: No reported disclosures

96. Assessing the Impact of the Meningitis/encephalitis Diagnostic Panel on Antimicrobial Stewardship

Jonathan Garellek, DO; Thien-Ly Doan, PharmD; Shawn Varghese, MD; Rebecca Schwartz, PhD; Rehana Rasul, MA MPH; Henry Donaghy, MD; Long Island Jewish Medical Center, New Hyde Park, New York, Northwell Health, Manhasset, New York.

Session: P-4. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

Background: The multiplex polymerase chain reaction (PCR) test for meningitis/encephalitis (ME) is an assay that is available to detect 14 organisms in 2 hours from the cerebrospinal fluid. The primary objective was to assess the clinical impact of this assay on antimicrobial stewardship.

Methods: This is an IRB-approved, retrospective cohort study of a random sample of patients admitted between 7/2015 - 12/2018, stratified by season. A chart review was performed to collect demographics, microbiology/treatment data, length of stay, hospital readmissions, and mortality. Differences for ME PCR versus culture only were assessed using Chi-square test or Fisher’s exact test. Time to de-escalation of empiric therapy was compared using the log-rank test.

Results: The study consisted of 241 patients, of whom 161 (66.6%) had CSF-PCR testing performed. Mean age was 51.76. There was an even distribution of males and females. Aside from patients with HIV, who were more represented in the standard period, there were no differences by comorbidity. The etiology of meningitis/encephalitis (ME) PCR was associated with an earlier time to antibiotics compared to the non-PCR group (10.5% vs. 2.5% in PCR and non-PCR respectively). Time to de-escalation of empiric therapy was significantly shorter in the PCR period (median [IQR]: 43.06 [26.9-47.7] vs. 64.62 [37.18-83.33], P= 0.004). Total days of therapy of antibiotics was longer among the PCR group, but not statistically significant (median [IQR] = 4 [1–7] vs. 2 [1–4], P=0.121). Median length of stay was higher in the PCR period compared to the standard group (median [IQR]: 9 [6 - 15] vs. 5.5 [3 - 8.5], P= 0.004). Readmission rates did not differ (PCR 13.7% vs. non-PCR 16.3%, P=0.592). More died during the PCR period (8.6% vs. 3.8%, P=0.16) than in the non-PCR period, there were no differences by comorbidity. The etiology of meningitis was greater in the PCR compared to the non-PCR group (10/15 in PCR and non-PCR). Overall antibiotics were discontinued in 53 % of patients in whom they were initiated pretest result.

Conclusion: This study shows that positive respiratory virus PCR is very useful as it led to discontinuation of antibiotics by treating physician in 40 % and further 13% by an antibiotic stewardship intervention. Adding a stewardship intervention after test result further adds reduction to antibiotic usage.

Disclosures: All Authors: No reported disclosures

97. Assessment of the accuracy of direct antimicrobial susceptibility testing from positive blood cultures in pediatric patients and its utility as an antimicrobial stewardship tool

Timothy Savage, MD, MSc; Shun Rao, Bachelor; Jill Joerger, MT (ASCP); Al Gronoff, PhD CPHS; Alexander McAdam, MD, PhD; Thomas Sandora, MD MPH; Boston Children’s Hospital, Brookline, Massachusetts; Boston Children’s Hospital, Boston, Massachusetts; Boston Children’s Hospital/Brookline, Massachusetts; Boston Children’s Hospital, Harvard Medical School, Boston, Massachusetts

Session: P-4. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

Background: Hospitalized pediatric patients with bacteremia receive broad-spectrum antibiotics while organism identification and antibiotic susceptibilities are pending. Direct susceptibility testing (DST) using unstandardized Kirby-Bauer disk diffusion prepares early results before standardized (final) antimicrobial susceptibility testing (AST) is available. The accuracy of DST in comparison with AST has been poorly studied. If DST is highly accurate, it could facilitate earlier de-escalation of antibiotics.

Methods: Retrospective cohort study of all positive blood cultures at Boston Children’s Hospital between January 1, 2017 and October 20, 2019. Isolates were eligible for inclusion if a DST result was available. Isolates were excluded if more than one organism grew from a blood culture or if a patient had repeated blood cultures positive for the same organism within 14 days. Patient characteristics and antibiotic orders were identified via a local data warehouse. Positive and negative predictive value (PPV, NPV) of DST were calculated for each bug-drug combination. Antibiotic Spectrum Index was calculated as the time points to assess change in antibiotic prescribing after availability of DST and AST results.

Results: 496 patients (median age: 51 months, IQR: 7–165 months) with ≥603 positive blood cultures were included in the final analysis. PPV of DST was ≥25/69 for most organism-antibiotic pairs (Table). NPV of DST varied substantially across organism-antibiotic pairs and was frequently lower than PPV. The proportion of patients with positive respiratory viral PCR and to evaluate the impact of a targeted antimicrobial stewardship intervention on antibiotic use.

Methods: In this Quasi experimental study, adult patients presenting to RVH ER with positive respiratory PCR from January 13 2020 to February 27 2020 were reviewed. Patient demographics, clinical, comorbidities, laboratory and radiology reports, antibiotic and antiviral usage before and after test were recorded. For patients without microbiological or radiological evidence of bacterial infection, a standard questionnaire was administered to treating physician. Antibiotic prescribing rate before and following a positive PCR and antibiotic discontinuation following ASP questionnaire was tracked.

Results: During the study period, 147 adult patients presented to the ER with positive respiratory PCR. Among the study population, antibiotic prescription rate was 49% prior to test result. Influenza was the most common respiratory virus isolated (89/147). Following the respiratory viral PCR, antibiotics were stopped 39% and continued in 51 % by the treating physician. Main reasons for antibiotic continuation included concurrent bacterial infection 30 (pneumonia 9/30), COPD exacerbation 5/30, febrile neutropenia (5/30) and hemodynamic instability (4/30). Antibiotics were continued without obvious indications in 15 patients and were targeted for intervention. Overall 66% (10/15) of ASP interventions were accepted and antibiotics discontinued.

Conclusion: This study shows that positive respiratory virus PCR is very useful as it led to discontinuation of antibiotics by treating physician in 40 % and further 13% by an antibiotic stewardship intervention. Adding a stewardship intervention after test result further adds reduction to antibiotic usage.

Disclosures: All Authors: No reported disclosures
Conclusion: DST is highly accurate at identifying susceptibility to antibiotics for many bug-drug combinations in pediatric blood culture isolates, but its ability to identify non-susceptibility is less robust. The observed spectrum of prescribed antibiotics was narrower after DST results, suggesting some clinicians may be using the result to de-escalate therapy. DST may be a useful low-cost tool for antimicrobial stewardship.

Disclosures: All Authors: No reported disclosures

98. Clinical and Pharmacoeconomic Impact of Rapid Diagnostic Pneumonia Panel in Critically Ill Patients Admitted with Nosocomial Pneumonia
Kathryn H. Kerr, PharmD1; Nikunj M. Vyas, PharmD, BCPS2; Cindy Hou, DO, MA, MBA, FACOEM1; Jefferion Health - New Jersey, Harleysville, Pennsylvania

Session: P-4. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

Background: Rapid identification of causative organisms and tailored antibiotic therapy is essential to improving patient outcomes in critically ill patients with nosocomial pneumonia (NP). The BioFire FilmArray Pneumonia Panel (BFPP) can identify and semi-quantify the causative organisms via PCR. However, there is limited evidence of its implementation and utility within antimicrobial stewardship program (ASP) in managing NP.

Methods: This was an IRB-approved retrospective pre- and post-interventional study at an acute care hospital. Critically ill patients were included in the intervention group (IG) with a confirmed diagnosis of NP and had BFPP performed. Patients in IG were matched on a 1:1 ratio to a comparator group (CG) who did not receive BFPP. The primary endpoint was clinical cure (CC), defined as: 1) resolution of symptoms and/or leukocytosis; or 2) radiographic improvement; or 3) expression of CC noted by infectious disease physician. Secondary endpoints included time to escalation, de-escalation, or discontinuation of antibiotics, and inpatient mortality (IM). In addition, a pharmacoeconomic analysis of the utilization of this panel was conducted.

Results: There were 52 patients evaluated, of which 26 were included in IG and 13 were matched to be included in CG. Demographics were similar between the two groups. No difference in CC was observed between IG and CG (38.5% vs 38.5%, p = 1). However, when evaluating ASP interventions, more patients in IG had de-escalation (53.8% vs 15.4%, p = 0.01) and discontinuation (50% vs 7.7%, p = 0.003) performed compared to CG. No difference was seen in escalation of therapy (34.6% vs 30.8% NS) and IM (26.9% vs 46.2%, p = 0.27). Time to ASP intervention was quicker by 24 hours in IG vs CG (24 vs 48 hours, p = 0.01). There was no observed benefit of BFPP on CC and IM in critically ill patients. However, utilization of BFPP led to faster time to ASP interventions and higher rates of de-escalation and discontinuation of antibiotics when utilized as part of ASP. BFPP can serve to be a cost-effective option for critically ill patients.

Disclosures: All Authors: No reported disclosures

100. Development and Implementation of a 2-Tier Testing Algorithm for Clostidioides difficile: An Evaluation of Outcomes on Patients with Indeterminate Results at 90 Days
Johanna P. Brown, MD1; Stephanie Puckett, Pharm D2; Infectious Diseases Associates of Central Virginia, Lynchburg, Virginia; 1Centra Hospital, Lynchburg, Virginia

Session: P-4. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

Background: There is no definitive gold standard for accurate diagnosis of Clostridioides difficile (C. difficile) infection. There is ample evidence that relying on a molecular test such as Polymerase Chain Reaction (PCR) for diagnosis, can lead to over diagnosis and unnecessary treatment. Combined, multi-step algorithms have been proposed to improve specificity of testing. The challenge remains in interpreting discordant or indeterminate results. Additionally, the risk of hospitalization due to lack of treatment for indeterminate results remains unclear.