**200. Prospective Evaluation of the GenMark Dx ePlex® Blood Culture Identification Gram Positive Panel**

Jeremy Meeder, BS[1]; Derek Moates, BS, MS[1]; Hannah Pierce, BS, MS[1]; Jamie Hutchinson, BS[1]; Cameron White, MD, MPH[1]; Pia Cumagun, MD[1]; Rachael A. Lee, MD [1]; Todd P. McCarty, MD[2]; Sixto M. Leal, Jr., MD, PhD[1]; [1]University of Alabama at Birmingham, Birmingham, Alabama; [2]University of Alabama at Birmingham; Birmingham VA Medical Center, Birmingham, Alabama

**Session:** P-10. Bacteremia

***Background.*** The ePlex BCID Gram-Positive (GP) panel utilizes electrowetting technology to detect the most common causes of GP bacteremia (20 targets) and 4 antimicrobial resistance genes in positive blood culture bottles. Rapid detection of intrinsic vancomycin resistance and acquired resistance genes (*mecA, mecC, vanA, vanB*) enables early optimization of antimicrobial therapy whereas early detection of common contaminants decreases unnecessary antibiotic utilization and hospitalizations.

***Methods.*** In this prospective study, we evaluated the performance of the BCID-GP panel compared to traditional standard of care culture and susceptibility testing with organism identification using the BioMerieux Vitek MS Matrix Assisted Laser Desorption Ionization (MALDI) Time of Flight mass spectrometry. Samples submitted for standard of care testing in Biomerieux BacT/Alert resin FA/FN blood culture bottles on the BacT/Alert VIRTUO automated blood culture system with GP bacteria on direct exam (n=100) were included.

***Results.*** All GP bacteria were represented on the BCID-GP panel, most tests 97/100 (97%) yielded valid results, 53 common skin contaminants (50 coagulase negative staphylococci (CNS), 2 *Bacillus*, 1 *Corynebacterium*) were identified, and 7/7 coinfections with Gram negative (GN) bacteria were detected by the Pan GN target and identified by the BCID-GN panel. Discordant analyses revealed a positive percent agreement (PPA) of 96/97 (99%) with 1 false negative CNS and a negative percent agreement (NPA) of 92/97 (94.8%) with 5 false positives for either *S. epidermidis* or *Corynebacterium*. Detection of *vanA* yielded a PPA of 4/4 and NPA of 9/9. *mecA* gene detection exhibited a PPA of 14/14 and NPA of 14/14 for *S. aureus* and a PPA of 31/32 (97%) and NPA of 16/16 for coagulase negative staphylococci with 1 false negative methicillin resistant *S. epidermidis*.

***Conclusion.*** Detection of acquired vancomycin resistance (n=4) and absence of *mecA* gene detection in *Staphylococcus* species (n=30) represent opportunities for early optimization of antimicrobial therapy in 34/100 (34%) of samples. The BCID-GP panel provides rapid accurate detection of resistant isolates and common contaminants enabling high quality data driven optimization of antimicrobial therapy.

***Disclosures.*** **Todd P. McCarty, MD**, **Cidara** (Grant/Research Support)**GenMark** (Grant/Research Support, Other Financial or Material Support, Honoraria for Research Presentation)**T2 Biosystems** (Consultant) **Sixto M. Leal, Jr., MD, PhD**, **Abnova** (Grant/Research Support)**AltImmune** (Grant/Research Support)**Amplyx Pharmaceuticals** (Grant/Research Support)**Astellas Pharmaceuticals** (Grant/Research Support)**CNINE Dx** (Grant/Research Support)**GenMark Diagnostics** (Grant/Research Support, Other Financial or Material Support, Honoraria-Research Presentation)**IHMA** (Grant/Research Support)**IMMY Dx** (Grant/Research Support)**JMI/Sentry** (Grant/Research Support)**mFluiDx Dx** (Grant/Research Support)**SpeeDx Dx** (Grant/Research Support)**Tetraphase Pharmaceuticals** (Grant/Research Support)

**201. Comparison of Bloodstream Infections Between Hospitalized Patients with and without COVID-19 Infection During the First Wave of the COVID-19 Pandemic in a Community Hospital in South Bronx: An Observational Study**

Afsheen Afzal, MD[1]; Edgar Gomez, Md[1]; Victor Perez Guttierrez, MD[1]; Aye Myat Mon, MD[1]; Carolina Moreira Sarmiento, MD[1]; Amna Khalid, MD[1]; svetlana Polishchuk, MD[1]; Mohannad Al-Khateeb Al-Khateeb, MD[1]; Mubarak Yusuf, MD[1]; Boyana Yankulova, MD[1]; Yinelka Silverio De Castro, MD[1]; Anjana Pillai, MD[1]; Usha Venugopal, MD[1]; Addi Feinstein, MD[1]; Alexander LaFortune, MD[1]; Daniel Sittler, MD[1]; Karen Hennessey, MD[1]; Vidya Menon, MD[1]; [1]Lincoln Medical Center, New York, New York

**Session:** P-10. Bacteremia

***Background.*** Comparative data on bloodstream infections (BSI) in hospitalized patients with and without SARS-CoV2 positive test is lacking.

***Methods.*** A retrospective observational study comparing (BSI) with and without COVID-19 infection was performed was performed from Jan1- May 1, 2020. Patient demographics, clinical microbiological characteristics of infections, therapeutic interventions and outcomes was compared between the two groups.

***Results.*** Of 155 patients with BSI, 104 were SARS-CoV2 PCR negative (N) while 51 were positive (Table 1). Majority of SARS-CoV2 positives (P) had ARDS (58.8%), required mechanical ventilation (73%), inotropic support (55%), therapeutic anticoagulation (28%), proning (35%), Rectal tube (43%), Tocilizumab (18%), and steroids (43%) (Table 2). BSI was higher in N with HIV (16.3% vs 3.9% p=0.027). Duration of antibiotic therapy (DOT) prior to BSI was significantly longer in P (15 days vs. 5 days, p < 0.0001) (table 2). In-hospital mortality was significantly higher among P with BSI (49% vs. 21% p < 0.0001). 185 BSI events were observed during the study period with 117 in N patients and 68 in P. Primary BSI was predominant (76%) in N while secondary BSI (65%) was common in P of which 50% were CLABSI. Median time from admission to positive culture was 0.86 days in N compared to 12.4 in P (p = 0.001). Majority of BSI in P were monomicrobial (88%) and hospital acquired (71%) when compared to N (p< 0.001). *Enterococcus spp* (28%), *Candida spp*(12%), MRSA (10%) and *E.coli* (10%) were predominant microbes in P compared to Streptococcus grp (16%), MSSA (14%), MRSA (13%) and *E.coli* (12%) in N (figure 1). Mortality from BSI was associated with COVID-19 infection (OR 2.403, p = 0.038), DM (OR 2.335, p = 0.032), Charlson comorbidity index >3 (OR 1.236, p = 0.004), and mechanical ventilation (OR 11.398, p < 0.001) on multivariate analysis.

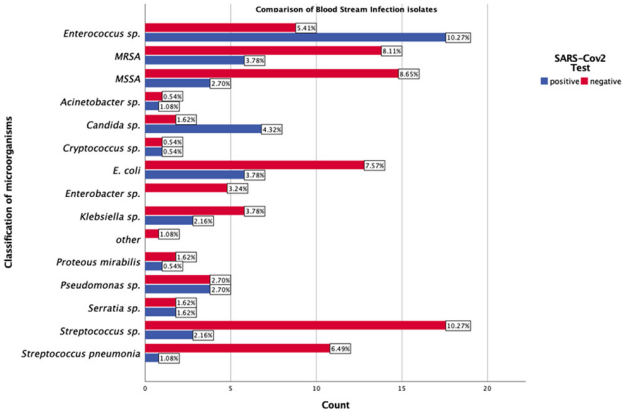
Table 1
Baseline characteristics & Demographics of COVID Negative vs. COVID Positive patients with BSIs

| | Overall n=155 | COVID Negative n=104 | COVID Positive n=51 | p-value |
|---|---|---|---|---|
| **Baseline characteristics** | | | | |
| Age | | | | 0.426 |
| Median, IQR | 60 (49 – 69) | 58.50 (48 – 67) | 64 (54 – 71) | 0.026 |
| <40 years old | 16 (10.3%) | 11 (10.6%) | 5 (9.8%) | |
| 41-59 years old | 59 (38.1%) | 44 (42.3%) | 15 (29.4%) | |
| >60 years old | 80 (51.6%) | 49 (47.1%) | 31 (60.7%) | |
| Gender | | | | 0.135 |
| Female, No (%) | 71 (45.8%) | 52 (50%) | 19 (37.3%) | |
| Male, No (%) | 84 (54.2%) | 52 (50%) | 32 (62.7%) | |
| Race | | | | 0.091 |
| Hispanic | 88 (56.8%) | 53 (51%) | 35 (68.6%) | |
| Black | 38 (24.5%) | 26 (25%) | 12 (23.5%) | |
| White | 3 (1.9%) | 2 (1.9%) | 1 (2%) | |
| Asian | 3 (1.9%) | 2 (1.9%) | 1 (2%) | |
| Others | 23 (14.8%) | 21 (20.2%) | 2 (3.9%) | |
| Body mass index | | | | 0.138 |
| Normal | 59 (38.1%) | 45 (43.3%) | 14 (27.5%) | |
| Overweight | 35 (22.6%) | 23 (22.1%) | 12 (23.5%) | |
| Obese | 44 (28.4%) | 24 (23.1%) | 20 (39.2%) | |
| Underweight | 17 (11%) | 12 (11.5%) | 5 (9.8%) | |
| **Comorbidities** | | | | |
| Charlson Comorbidity Score (CCS) | 3 (2 – 6) | 4 (2 – 6) | 3 (2 – 5) | 0.095 |
| Hypertension | 93 (60%) | 58 (55.8%) | 35 (68.6%) | 0.125 |
| Diabetes Mellitus | 71 (45.8%) | 44 (42.3%) | 27 (52.9%) | 0.212 |
| Asthma/Chronic obstructive pulmonary disease | 33 (21.3%) | 24 (23.1%) | 9 (17.6%) | 0.438 |
| SLE/RA | 6 (3.9%) | 6 (5.8%) | 0 | 0.080 |
| CKD/ESRD | 22 (14.2%) | 16 (15.4%) | 6 (11.8%) | 0.544 |
| Cirrhosis | 6 (3.9%) | 6 (5.8%) | 0 | 0.080 |
| Dementia | 7 (4.5%) | 5 (4.8%) | 2 (3.9%) | 0.803 |
| Previous history of cancer | 15 (9.7%) | 14 (13.5%) | 1 (2%) | 0.023 |
| HIV | 19 (12.3%) | 17 (16.3%) | 2 (3.9%) | 0.027 |
| Smoking | 48 (31%) | 41 (39.4%) | 7 (13.7%) | 0.001 |

Table 2. Treatment/Interventions in COVID Negative vs. COVID positive patients with BSIs

| | Overall n=155 | COVID Negative n=104 | COVID Positive n=51 | p-value |
|---|---|---|---|---|
| Length of Stay (days) | 14 (5 – 29) | 9 (4 – 21.75) | 20 (10 – 36) | 0.001 |
| Days to Positive Culture from Admission | 1.4 (0.6 – 12.4) | 0.86 (0.53 – 2.89) | 12.4 (1.30 – 21.75) | 0.001 |
| ARDS on admission | 42 (27.1%) | 12 (11.5%) | 30 (58.8%) | 0.000 |
| Mechanical Ventilation during hospitalization | 71 (45.8%) | 34 (32.7%) | 37 (72.5%) | 0.000 |
| Days of Mechanical Ventilation | 0 (0 – 12) | 0 (0 -3) | 14 (0 – 30) | 0.000 |
| Pressor Use during hospitalization | 59 (38.1%) | 31 (29.8%) | 28 (54.9%) | 0.003 |
| Days of Pressors | 6 (3 – 13) | 4 (1 – 8) | 9.5 (5 – 16.75) | 0.002 |
| Anticoagulation (therapeutic) | 27 (17.4%) | 13 (12.5%) | 14 (27.5%) | 0.021 |
| Proning | 21 (13.5%) | 3 (2.9%) | 18 (35.3%) | 0.000 |
| Rectal Tube | 33 (21.3%) | 11 (10.6%) | 22 (43.1%) | 0.000 |
| Tocilizumab | 9 (5.8%) | 0 | 9 (17.6%) | 0.000 |
| Steroids | 39 (25.2%) | 17 (16.3%) | 22 (43.1%) | 0.000 |
| Days of Steroids | 0 (0 – 1) | 0 | 15 (5 – 26) | 0.001 |
| Days of Antibiotics | 5 (4 – 16) | 5 (4 – 20) | 15 (5 – 26) | 0.000 |
| Death | 47 (30.3%) | 22 (21.2%) | 25 (49%) | 0.000 |

Comparison of Microorganisms isolated in the BSI




X-axis represents the number of BSI events whereas the number at the end of each bar represents the percentage