309. The Impact of Addiction Medicine Consultation on Discharges Against Medical Advice in Patients with Opioid Use Disorder and Staphylococcus Aureus Bacteremia

Stephanie Spivack, MD[1]; Daniel Mueller, MD[1]; Peter Axelrod, MD[2]; Joseph D'Orazio, MD[1]; [1]Temple University Hospital, Philadelphia, Pennsylvania; [2]Temple University Hospital, Fox Chase Cancer Center, Philadelphia, PA

Session: P-9. Bacteremia

Background: People who inject drugs (PWID) are at risk for infectious complications of their injection practices, including Staphylococcus aureus (SA) bacteremia. Prolonged hospitalization is sometimes required; however, rates of discharges against medical advice (AMA) are elevated in this patient population. Inadequate control of pain and opioid withdrawal are commonly cited. Our aim was to assess the effectiveness of addiction medicine consultation for preventing AMA discharges.

Methods: We performed a retrospective chart review of adult PWID admitted to an urban hospital with SA bacteremia between August 2016 and May 2018. Demographics, HIV and HCV status, and presence or absence of addiction medicine consultation were recorded. We assessed whether discharges were planned or AMA; the number of hospitalizations at 30 days, 90 days, and 1 year from index admission; and death within one year. EpiInfo6 was used for data analysis.

Results: A total of 360 patients with SA bacteremia were reviewed. Of these, 101 reported intravenous opioid use at admission. Average age was 37 years, and 64% were male. HIV and HCV were present in 13% and 82% of patients, respectively. Addiction medicine was consulted on 29 patients. Of these, 4/29 (13.8%) left AMA, compared to 27/72 (37.5%) of patients without an addiction consult (RR = 0.3678 [95% CI = 0.1412 - 0.9583], p = 0.02).

Patients receiving addiction medicine consultation averaged 0.17 readmissions within 30 days of their index admission, compared to 0.39 readmissions in the group without addiction medicine consult (p = 0.27). Readmissions at 90 days and 1 year were also lower but not statistically significant. At 1 year, 6 deaths were observed; 2 who had addiction medicine consultation and 4 who did not.

Conclusion: Consultation with an addiction medicine specialist significantly reduced the number of patients discharged AMA in a high-risk cohort of PWID presenting with SA bacteremia. Numerically fewer readmissions occurred after consultation, though this difference was not statistically significant. Mortality in both groups was low. There were high rates of HIV and HCV in this patient population, suggesting a particularly vulnerable patient population, which warrants further study.

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310. The Impact of Microscan versus Vitek-2 for Automated Susceptibility Testing on the Utilization of Vancomycin Alternatives for the Treatment of Methicillin-Resistant *Staphylococcus aureus* Bacteremia

Alexander Moskhos, BS Microbiology[1]; Arya Wibisono, MPH[1]; Kelly R. Reveles, PharmD, PhD[2]; Dusten T. Rose, PharmD, BCIDP, AAHIVP[3]; [1]College of Pharmacy, The University of Texas at Austin, Austin, TX, Austin, Texas; [2]University of Texas at Austin, San Antonio, TX; [3]Ascension Texas, Dell Seton Medical Center at The University of Texas, Department of Pharmacy, Austin, TX, Austin, Texas

Session: P-9. Bacteremia

Background: Automated susceptibility testing (AST) provides minimum inhibitory concentrations (MIC) to guide effective antibiotic therapy. AST is critical for methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia, as susceptible MIC values ≥ 1.5 μg/mL are associated with vancomycin (VAN) failure. The Microscan (MS) instrument may report elevated MIC values compared to Vitek-2 (VTK), thus impacting treatment. This study aimed to evaluate the impact of MS versus VTK on VAN alternative use in the treatment of MRSA bacteremia in a Texas health system.

Methods: This was a retrospective cohort study of patients admitted to the Ascension Seton health system in Austin, TX. Patient eligibility included: age ≥18 years, ≥1 positive MRSA blood culture, ≥72 hours of MRSA therapy, and VAN use within 48 hours of positive culture. Patients were stratified into the MS group (May 2013-Dec 2016) and VTK group (Jun 2017-Mar 2020). The primary outcome was therapy switch from VAN to VAN alternatives. Secondary endpoints include *S. aureus* MIC, 30-day all-cause mortality, 30 and 90-day readmission, and length of hospital stay (LOS). Outcomes were compared between groups using appropriate bivariable comparisons, as well as multivariable logistic regression and propensity score-adjusted logistic regression.

Results: A total of 199 patients were included: 91 in the MS group and 108 in the VTK group. Switch to VAN alternative was 56% vs. 19% (p< 0.0001) for MS and VTK, respectively. The median (interquartile range) MIC value reported was 2 μg/mL (2 – 2) and 1 μg/mL (0.5 – 1) for MS and VTK, respectively (p< 0.0001). Thirty-day readmission (19% vs. 20%, p=0.7647) and 30-day mortality (10% vs. 9%, p=0.5262) were comparable between MS and VTK groups, respectively. Hospital LOS significantly decreased in the VTK period (16 days vs. 12 days, p=0.0153). The MS group was the only independent positive predictor of VAN alternative therapy: logistic regression, OR 5.64 (95% CI 1.67–18.99) and propensity score adjusted, OR 4.21 (95% CI 1.32–13.48).

Conclusion: Since implementation of VTK from MS, Ascension Seton hospitals experienced a decreased median VAN MIC for MRSA bacteremia as well as therapy switches from VAN to VAN alternatives without affecting other patient health outcomes.

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311. The Role of Transthoracic Echocardiography in *Staphylococcus aureus* Bacteremia; A Retrospective Chart Review

Bruce M. Aldred, MD[1]; Dimitri M. Drekonja, MD, MS[2]; [1]University of Minnesota, St. Paul, Minnesota; [2]Minneapolis Veterans Affair Health Care System, Minneapolis, MN

Session: P-9. Bacteremia

Background: Evaluation for endocarditis is an essential step in the management of patients with Staphylococcus aureus bacteremia (SAB). A common approach, consistent with preeminent national guidelines, is to perform transthoracic echocardiography (TTE) followed by transesophageal echocardiography (TEE) in the majority of patients with SAB. It is unclear how often patient management decisions are influenced by the results of TTE versus TEE.

Methods: This retrospective chart review of 180 subjects evaluated adult veterans at a single large Veterans Affairs medical center who had SAB and completed both TTE and TEE. Institution-specific guidelines at this medical center, which were in place throughout the study time period, recommended completion of both TTE and TEE for all patients diagnosed with SAB if able to tolerate both studies. The timing of key patient-management decisions was correlated to the timing of each patient's TTE and TEE. It was then inferred whether each decision would have been informed by TTE alone versus TTE plus subsequent TEE. Management decisions included: initiation of synergistic antibiotics, documentation of antibiotic treatment duration, consultation of specialists such as Cardiology or Cardiac Surgery, and performance of valve surgery.

Results: Preliminary results show that management decisions were typically not performed until patients had undergone both echocardiography studies. In 18% of patients, management was deemed to be influenced in any capacity following TTE, compared to 91% following both TTE and TEE.

Conclusion: Our findings question the utility of performing a TTE in patients with SAB who are planned to also undergo a subsequent TEE.

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312. Unplanned Readmission after Hospitalization with *Staphylococcus aureus* Bacteremia in Children: a Multistate Population Based Study

Kengo Inagaki, MD[1]; Md Abu Yusuf Ansari, MS[1]; Charlotte V. Hobbs, MD[1]; [1]University of Mississippi Medical Center, Jackson, MS

Session: P-9. Bacteremia

Background: *Staphylococcus aureus* bacteremia is associated with substantial mortality and morbidity. Readmission is becoming increasingly recognized as an important quality measure and can inform optimal patient care. We previously reported readmission analyses in the setting of *S. aureus* bacteremia in the adult population. However, readmission has not been characterized in children.

Methods: We performed a population-based longitudinal observational study using the State Inpatient Database from New York, Florida, and Washington states, 2009–2015. Children aged 18 years or younger hospitalized with *S. aureus* bacteremia were included. The outcome of unplanned readmission within 30 days and 90 days of discharge was assessed by developing Cox proportional hazards regression models.

Results: Of 1240 children that were included in the analysis, 18% (223 children) had unplanned readmission within 30 days after discharge, and 28.3% were readmitted within 90 days. On multivariable analysis, children with underlying conditions of hematologic malignancy (hazard ratio, HR: 1.67, 95% confidence interval, CI: 1.09–2.56) and catheter related infection (HR: 1.79, 95%CI: 1.31–2.45) had higher hazards of readmission, whereas coexisting skin and soft tissue infection (HR: 0.42, 95%CI: 0.24–0.71) was associated with a lower rate of readmission (Table, Figure). In addition to these, solid tumor malignancy and longer length of stay during the original hospitalization were associated with higher hazards of 90-day readmission. The median cost of the original hospitalization for *S. aureus* bacteremia was $29914 (interquartile range, IQR: $13276-$71284), and that of 30-day readmission was $10956 (interquartile range, IQR: $5765-$24753).