Session: 37. Bacteremia, CLABSIs, and Endovascular Infections
Thursday, October 3, 2019: 12:15 PM

Background. Caring for hospitalized patients with infective endocarditis (IE) can be challenging due to the nature of the disease and its complications, underlying medical and psychiatric problems, socioeconomic status and environmental factors. Some of these patients develop recurrent IE after the first episode treated. On-going intravenous (IV) drug use after hospital discharge is the highest predictive factor for recurrent IE. Besides IV drug use, there are limited data of other contributing factors to recurrent IE. Those factors may be modifiable during the first hospitalization to reduce the incidence of recurrent IE.

Methods. A retrospective cohort study was conducted at a large tertiary acute care medical center in Tampa, Florida. All consecutive patients with IE with history of IV drug use from January, 2011 to December, 2017 were included. Basic demographic information, co-morbidities (diabetes, hypertension, chronic lung and kidney diseases, HIV, Hepatitis B and C status, coronary artery diseases), valves involved, length of stay, complications at their first IE episode such as septic shock and stroke were included. Groups were identified based on the first episode, first recurrence and second or more recurrences of IE.

Results. A total of 106 patients were identified based on the inclusion criteria. The association between the type of valve infection (right side and left side) and IE recurrence was found to be statistically significant (P < 0.001). Right side valves are prone to have recurrent IE episodes. People with recurrent IE were more likely to have septic shock (P = 0.02) and requiring intensive care unit (ICU) admissions (P < 0.001) during their first episode. There was no statistically significant difference between other demographic information and recurrent endocarditises as well as other parameters such as organisms or type of substance used. (Table 1)

Conclusion. Right-sided IE and presence of septic shock during their first episode of IE may be the predictors for recurrent IE. Interventions including closer follow-up, more aggressive septic shock recognition and management, socioeconomic assessment in addition to substance abuse treatments after discharge should be considered to prevent recurrent IE.

Table 1: Demographic Characteristics and Risk factors for IE Patients

| Parameters         | IE first event | IE first recurrence | IE second recurrence or more | P-value |
|--------------------|----------------|---------------------|------------------------------|---------|
| Gender             | Male           | 25                  | 15                           | 0.681   |
|                    | Female         | 32                  | 8                            |         |
| Age (year-old)     | 56 (12-64)     | 36 (24-92)          | 27 (37-59)                   |         |
| Mean Length of Stay (days) | 42 (8.138)     | 57.5 (13.5)         | 45 (12.3)                    |         |
| Ethnicity          | Asian          | 1                   | 0                            |         |
|                    | Black          | 13                  | 8                            |         |
|                    | Hispanic       | 8                   | 8                            |         |
|                    | White          | 18                  | 0                            |         |
| Others             | 2               | 2                   | 2                            |         |
| Medical Insurance  | Medicalized    | 46                  | 27                           | 0.003   |
|                    | Uninsured      | 11                  | 8                            |         |
| Living Status      | Stable         | 35                  | 33                           | 0.191   |
|                   | Unstable       | 13                  | 13                           |         |
| Race               | Hispanic       | 3                   | 0                            |         |
|                   | Non-Hispanic   | 2                   | 2                            |         |
| Toxidicity         | Amphotericin   | 4                   | 4                            | 0.705   |
|                    | Oxides         | 9                   | 10                           |         |
|                    | Opides         | 37                  | 12                           |         |
|                    | Opides, Oxides | 8                   | 2                            |         |
|                    | Oxamnol, Carnobol, Carnobol, Carnobol, Carnobol | 3 | 0 |
|                    | Underlying Co-Morbidities | 12 | 0 |
| Diabetes mellitus  | 21               | 12                 | 7                            | 0.436   |
| Hypertension       | 32               | 31                 | 8                            | 0.992   |
| Hyperlipidemia     | 27               | 17                 | 7                            | 0.128   |
| History of cancer  | 13               | 12                 | 9                            | 0.550   |
| History of cancer  | 20               | 9                  | 12                           | 0.010   |
| Malignant neoplasm | 40               | 21                 | 19                           | 0.001   |
| Malignant neoplasm | 20               | 21                 | 19                           | 0.010   |
| Malignant neoplasm | 40               | 21                 | 19                           | 0.001   |
| Malignant neoplasm | 20               | 21                 | 19                           | 0.010   |
| Malignant neoplasm | 40               | 21                 | 19                           | 0.001   |
| Malignant neoplasm | 20               | 21                 | 19                           | 0.010   |
| Malignant neoplasm | 40               | 21                 | 19                           | 0.001   |
| Malignant neoplasm | 20               | 21                 | 19                           | 0.010   |
| Malignant neoplasm | 40               | 21                 | 19                           | 0.001   |
| Malignant neoplasm | 20               | 21                 | 19                           | 0.010   |
| Malignant neoplasm | 40               | 21                 | 19                           | 0.001   |
| Malignant neoplasm | 20               | 21                 | 19                           | 0.010   |
| Malignant neoplasm | 40               | 21                 | 19                           | 0.001   |
| Malignant neoplasm | 20               | 21                 | 19                           | 0.010   |
| Malignant neoplasm | 40               | 21                 | 19                           | 0.001   |
| Malignant neoplasm | 20               | 21                 | 19                           | 0.010   |
| Malignant neoplasm | 40               | 21                 | 19                           | 0.001   |
| Malignant neoplasm | 20               | 21                 | 19                           | 0.010   |
| Malignant neoplasm | 40               | 21                 | 19                           | 0.001   |
| Malignant neoplasm | 20               | 21                 | 19                           | 0.010   |
| Malignant neoplasm | 40               | 21                 | 19                           | 0.001   |
| Malignant neoplasm | 20               | 21                 | 19                           | 0.010   |
| Malignant neoplasm | 40               | 21                 | 19                           | 0.001   |
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| Malignant neoplasm | 40               | 21                 | 19                           | 0.001   |
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| Malignant neoplasm | 20               | 21                 | 19                           | 0.010   |
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| Malignant neoplasm | 20               | 21                 | 19                           | 0.010   |
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| Malignant neoplasm | 40               | 21                 | 19                           | 0.001   |
| Malignant neoplasm | 20               | 21                 | 19                           | 0.010   |
| Malignant neoplasm | 40               | 21                 | 19                           | 0.001   |
| Malignant neoplasm | 20               | 21                 | 19                           | 0.010   |
| Malignant neoplasm | 40               | 21                 | 19                           | 0.001   |
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| Malignant neoplasm | 40               | 21                 | 19                           | 0.001   |
Methods. As part of an antimicrobial stewardship program (ASP) initiative managing Infectious Diseases consultation for episodes of SAB, our ASP prospectively monitored all cases of SAB at a 341-bed community hospital in Jefferson Hills, PA from April 2017–February 2019. Cases included patients with 30-day mortality from the initial positive blood culture. Only the first episode of SAB was included; patients were excluded if a treatment plan was not established (e.g., left against medical advice). Patient demographics, comorbidities, laboratory results, and clinical management of SAB were evaluated. Inferential statistics were used to analyze risk factors associated with 30-day mortality.

Results. 100 patients with SAB were included; 18 (18%) experienced 30-day mortality. Cases were older (median age 76.5 vs. 64 years, P < 0.001), more likely to be located in the intensive care unit (ICU) at time of ASP review (55.6% vs. 30.5%, P = 0.043), and less likely to have initial blood cultures obtained in the emergency department (ED) (38.9% vs. 80.5%, P < 0.001). Variables associated with significantly higher odds for 30-day mortality in univariate analysis: older age, location in ICU at time of ASP review, initial blood cultures obtained at a location other than the ED, and total Charlson Comorbidity Index (CCI). Variables with P < 0.2 on univariate analysis were analyzed via multivariable logistic regression (Table 1).

Conclusion. Results show that bacteriaemia due to MRSA and total CCI were not significantly associated with 30-day mortality in SAB, whereas older age was identified as a risk factor. Patients with initial blood cultures obtained at a location other than the ED were at increased odds for 30-day mortality on univariate analysis, which may raise concern for delayed diagnosis.

Table 1. Multivariable analysis of variables associated with 30-day mortality

| Exposure variable       | OR (95% CI) | p-value |
|-------------------------|------------|--------|
| Age                     | 1.1 (1.03–1.16) | 0.001 |
| Total CCI               | 1.1 (0.89–1.33) | 0.412 |

Area under the receiver operating characteristic curve = 0.8196

Disclosures. All authors: No reported disclosures.

173. Successful Treatment of Carbapenem-Resistant Klebsiella pneumoniae (CR-Kp) Aortic Valve Endocarditis with Cefetazidime–Avibactam

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Background. The emergence of carbapenem-resistant Klebsiella pneumoniae (CR-Kp) presents significant clinical challenges with our limited antibiotic armamentarium. Infective endocarditis caused by CR-Kp is rare, with few cases reported in the literature. The use of the novel β-lactam/β-lactamase inhibitor combination cefetazidime–avibactam (CAZ-AVI) in this setting has only been described in one 2018 case in Italy. Guidance in how these novel antibiotics should be used becomes more prudent as the prevalence of complicated CR-Kp infections increases.

Methods. A 51-year-old male with a past medical history of a gunshot wound to the neck, type 2 diabetes, and osteomyelitis status post right below-the-knee amputations presented to the emergency department (ED) with a 51-day history of fever and chills. The patient’s hospital course was complicated by hemorrhagic stroke, left above-the-knee amputation, and intraoperative cardiac arrest. Subsequently, blood cultures on hospital days 41 and 43 grew CR-Kp and a transesophageal echocardiogram (TEE) showed moderate to severe aortic regurgitation.

Results. Anti-microbial therapy was changed from imipenem-cilastatin and colistin to CAZ-AVI and amikacin. The organism was found to be susceptible to CAZ-AVI and amikacin, intermediate to colistin, and resistant to all carbapenems. A transesophageal echocardiogram (TEE) confirmed the presence of a small mobile vegetation on the aortic valve with perforation and severe regurgitation. CAZ-AVI and amikacin were continued for two weeks, and then switched to CAZ-AVI and ertapenem for an additional four weeks. Follow-up blood cultures on and after day 44 were negative for CR-Kp. A TTE performed after therapy completion no longer demonstrated aortic regurgitation; however, the valves were poorly visualized. The patient then suffered anoxic brain injury after a second cardiac arrest, thought to be unrelated to endocarditis. The patient’s family then decided on hospice care and the patient expired.

Conclusion. We report the successful treatment of CR-Kp endocarditis with CAZ-AVI and amikacin for two weeks followed by CAZ-AVI and ertapenem for four weeks. This regimen can be a viable option for patients that present with this rare multiresistant infection.

Disclosures. All authors: No reported disclosures.