1082. Meta-Analysis of Survival Outcomes in People Who Inject Drugs After Cardiac Surgery for Infective Endocarditis
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**Session:** 131. Bacteraemia and Endocarditis

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**Background.** The United States’ opioid epidemic has led to an increase in people who inject drugs (PWID) and opioid-associated infections, including infective endocarditis (IE). Cardiac surgery is often indicated in IE to improve outcomes but is controversial in PWID due to the concern about continued injection drug use leading to risk for reinfection and decreased survival. In response, we assessed the long-term survival after cardiac valve surgery in PWID compared with people who do not inject drugs (non-PWID) in the published literature.

**Methods.** We performed a systematic review and meta-analysis (MA) of studies that reported survival data after surgery for IE in PWID. We searched PUBMED up to April 2018. We extracted Kaplan–Meier (KM) curves from included studies. From the KM curves, we used an algorithm to estimate individual participant data (eIPD). In a one-step approach, we ran a Cox proportional hazards (CPH) model analysis of the eIPD with study random effects. In a two-step approach, we fitted CPH models by individual study; then, we ran a mixed-effects MA model of the log hazard ratios (HR) and standard errors.

**Results.** We identified 11 retrospective studies. Of these, six reported comparisons of PWID vs. non-PWID, and five reported results for PWID only. Based on eIPD, we included 407 PWID and 1,877 non-PWID. Mean age for PWID was 36.7 years (95% CI 34.4–39.1) and for non-PWID was 52.0 years (95% CI 45.3–59.4). There were 144 deaths (35.3%) in PWID and 559 (28.8%) deaths in non-PWID. We present by study and by group KM curves of eIPD (Figures 1 and 2). In one-step MA (included all 11 studies), the HR for PWID was 1.13 (95% CI 0.92–1.39). In two-step MA (included six comparison studies), heterogeneity was high (I² = 72%); and there was no significant between-group difference (HR 1.29; 95% CI 0.80–2.07) (Figure 3).

**Conclusion.** Survival time post-surgery of PWID was similar to that of non-PWID. These estimates are concerning, as PWID on average are much younger than non-PWID with IE. Future studies should explore interventions to improve outcomes in PWID after surgery, including treatment of addiction during and after the index hospitalization and provision of naloxone at the time of discharge.

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1083. Long-Term Prognosis of 448 Infectious Endocarditis Followed by an Endocarditis Team
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**Background.** The management of infective endocarditis (IE) by an expert medical-surgical team through multidisciplinary consultation meetings is now recommended. While it seems clear that it can improve the short-term prognosis of patients, long-term data are still scarce.

**Methods.** All patients hospitalized between 2013 and 2017 in the three teaching hospitals of our center with an IE treated by the multidisciplinary team were followed prospectively at 1, 3, 6, and 12 months. The main objective was to determine the 1-year mortality of the entire cohort treated by the team.

**Results.** During the study, 493 patients had a certain or possible IE and the outcome at 1 year was known for 448 of them (4 lost to follow up and 41 followed for less than 1 year): 254 had native valve IE (57%) and 194 had prosthetic valve IE (43%). The median age of IE patients was 69.3 years (155 patients were over 75 years old) and 329 (73%) were men. Healthcare-associated IE (HAIE) accounted for 47% of cases. A microorganism was isolated in 92% of cases (S. aureus 24%, 252 patients (56%) had an embolic events and 68 (15%) had heart failure. The Charlson Median Comorbidity Index (CCI) was 5.0. Two hundred sixteen patients (48%) underwent surgery. The mortality rates at 1 month, 3 months, 6 months, and 1 year were, respectively, 14.1%, 19.0%, 23.2%, and 27.7%. The CCI at inclusion of patients who died at 1 year was 6.0 vs. 4.0 for survivors. Mortality at 1 year was significantly higher in case of HAIE (33% vs. 23%), documented S. aureus IE (39% vs. 24%), exclusive medical treatment (40% vs. 15%), and heart failure (45% vs. 25%).

**Conclusion.** While the management of IE by an endocarditis team seems to improve the short-term prognosis of IE, 1-year mortality remains high as patients are increasingly older and have severe comorbidities. Our study confirms that early prognostic factors remain in the long term and that the prognosis is better in community-acquired IE with surgery.

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1084. Nocardia Cyriacigeorgica Endocarditis
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**Background.** Nocardia are beaded, branching Gram-positive rods that are partially acid fast and usually slow growing. Nocardia cyriacigeorgica was first described in 2001, and antimicrobial susceptibility patterns correspond with type VI Nocardia asteroides complex. Nocardia species are not a commonly associated with endocarditis, less than 20 cases to date have been documented. However, when Nocardia endocarditis is identified, the mortality rate is reported to be as high as 41% making antibiotic selection vital in the inpatient and outpatient setting.

**Methods.** A 62-year-old male with a past medical history significant for severe chronic obstructive pulmonary disease (COPD), atrial fibrillation, atrial tachyarrhythmia, and congestive heart failure (CHF) presented to the emergency department (ED) with shortness of breath for 1 week. The patient was initiated on IV diuretics, meropenem, and eventually required intubation. On hospital day 2, two blood cultures grew Gram-positive rods, which were eventually identified as aerobic Actinomycete. Culture was sent out for DNA sequencing and N. cyriacigeorgica was identified. Transthoracic echocardiogram showed possible mitral vegetation.

**Results.** Antimicrobial therapy was initially de-escalated from meropenem to ampicillin, but had to be escalated to ceftriaxone once N. cyriacigeorgica was identified by DNA sequencing. The organism was reported to be susceptible to amikacin, ceftriaxone, linezolid, tobramycin, and trimethoprim/sulfamethoxazole. The patient received 1 week of ceftriaxone therapy inpatient, and was discharged on an additional 3 weeks of ceftriaxone and 6 months of minocycline suppressive therapy.

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Two months later the patient was re-admitted for N. cyriacigeorgica bacteremia and a pulmonary embolism. During his hospital stay, the patient had a STEMI, but due to multiple comorbidities did not undergo cardiac catheterization. The family elected to withdrawal care, and the patient expired.

**Conclusion.** N. cyriacigeorgica is more commonly identified in brain abscesses or skin infections in Iran. We report here on an unusual case of N. cyriacigeorgica endocarditis in a patient with COPD. Other than COPD, the patient had no known risk factors for N. cyriacigeorgica, including chronic steroid use.

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### 1085. Enterococcal Cardiac Implantable Electronic Device (CIED) Infections: Clinical Features and Outcomes

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**Background.** Enterococcal CIED infections, were used to provide a descriptive analysis of adult patients with CIED infections due to enterococcal species.

**Results.** Of 433 patients, 21 (4.8%) were diagnosed with enterococcal CIED infec- tion. Specific data on enterococcal species and antimicrobial susceptibilities were not recorded. The mean age was 70.8 years. No patient had previous CIED infection. Twelve patients (57%) had a previous pacemaker, 5 (24%) had a implantable cardioverter debrillator, and 4 (19%) had a biventricular devices. Among the 21 infections, 3 (14%) were categorized as CIED-related bloodstream infections and 18 (86%) as IE; no patient had isolated pocket infection. Of the IE cases, four were valvarul IE, eight were lead IE, and six were both. Fourteen cases of IE (78%) were defined by the Duke criteria. Median time from last device procedure to infection was 510 days (range 37–2952 days). The most common presenting symptom was fever (48%); five patients (24%) exhibited local signs of pocket infection. All 21 patients underwent TEE with vegetations demonstrated in 17 (81%). Blood cultures grew enterococcus from all patients. The most common antimicrobial regimen was a penicillin plus amoxicillin (38%); two patients (9%) received ampicillin + ceftriaxone. Antibiotics were given for a median of 43 days. Only 14 patients (67%) had complete device removal; the seven patients retaining their device were judged to be at high risk for extraction. There was one death during the index hos- pital stay with four additional patients dying over the 6 months after therapy (overall mortality 24%); two of the seven patients retaining their CIED died.

**Conclusion.** Enterococci caused 4.8% of all CIED infections in our cohort. Most infections were related to a device in origin with late onset. IE was the most common infectious syndrome. A penicillin plus amoxicillin, given for 6 weeks, was the most frequent therapy. Only 67% of patients underwent device removal. At 6 months follow-up, no relapses had occurred but overall mortality was 24%.

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### 1086. Impact of Systemic Thrombo-Abdomino-Pelvic CT Scan on the Diagnosis of Infective Endocarditis

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**Methods.** From January 2013 to July 2016, we included consecutive patients with definite or suspected acute endocarditis. According to the Duke-modified criteria, and after validation by the endocarditis teams. The main exclusion criterion was the absence of TAP-CT scan. We compared the Duke clas- sification diagnosis data and treatment data (medical and/or surgical) regarding the presence or the absence of EE on the CT and investigated the tolerance of this exami- nation as well.

**Results.** Of the 522 patients included in this study, 217 (41.6%) had one or more EE on the TAP-CT. The two major Duke modified criteria were found in 397 patients (76,1%) and 457 patients (87,6%) had a definite endocarditis. On the basis of TAP-CT results in asymptomatic patients, diagnostic classification was upgraded from possible endocarditis to definite endocarditis for only four cases which represent 0.8% of the population. The presence of EE on CT did not modify the duration of antibiotic treat- ment (P = 0.55) and the decision of surgical treatment (P = 0.39). Specific treatment of the EE was necessary in 42 patients (8.0%) but only nine of these EE (1.9%) were asymptomatic. Additional studies are needed to assess whether CT-scan improves patient outcomes, leads to unnecessary procedures and increased costs.

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### 1087. Aortic Graft Infections Caused by Propionibacterium acnes at the Minneapolis Veterans Affairs Health Care System (MVACS) 2007–2017

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**Background.** Propionibacterium acnes is a Gram-positive microaerophilic bac- terium and part of the human skin flora. The ability of P. acnes to cause infections has been recognized, particularly in the presence of hardware. We aimed to define the frequency of P. acnes infections, with a focus on aortic graft infection.

**Methods.** We used microbiology laboratory records at the Minneapolis Veterans Affairs Health Care System to identify all P. acnes cultures from January 2007 to January 2017. We retrospectively reviewed all (218 years) patient’s medical records to identify associated infectious syndromes. Case definitions by the management of Aortic Graft Infection Collaboration were used to classify aortic graft infection cases.

**Results.** We identified 328 positive P. acnes cultures during the study period. P. acnes was classified as a pathogen in 48 (15%), a pathogen of undetermined signifi- cance in 70 (21%), and a contaminant in 210 (64%) cases. We identified three cases with polyomavirus infection which accounted for (2.5%) of infections caused by P. acnes. Median age (range) at presentation was 74 years (67–83). Symptoms included pain (n = 3), fever (n = 2), and altered mental status (n = 1). None were hypotensive. All patients had at least one revision for endoleak prior to presentation. Median time from symptom onset to diagnosis was 21 days (78–140). Microbiological diagnosis was obtained by blood cultures, percutaneous peri-graft tissue aspiration, and operative culture in each patient, respectively. Infection was complicated by metastatic abscess in one patient. All cultures grew on Day 7. All patients were treated with IV ceftriaxone, and two were transitioned to life-long oral suppressive antibiotic therapy. Two patients had complete removal of infected material. No relapse was documented and survival was 100% at 1 year follow-up.

**Conclusion.** Aortic graft infection is an uncommon subset of infections caused by P. acnes. Clinical course is indolent and diagnosis is delayed due to nonspecific clinical presentation. In contrast to endovascular graft infection caused by other organ- isms, mortality is low when treated with appropriate antibiotic therapy and removal of infected material. The current laboratory practice of holding blood cultures for 5 days may need to be altered when a P. acnes is a potential cause of infection.

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### 1088. Ultrasensitive Detection of C. difficile Toxins in Stool Using Single Molecule Counting Technology: A Multicenter Study for Evaluation of Clinical Performance

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**Conclusion.** A unique approach to evaluate C. difficile as a cause of antibiotic-associated diarrhea and detection of an asymptomatic carrier state using ultrasensitive ultrasensitive detection of toxins in stool using single molecule counting technology was performed at three multicenter sites in the United States.

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