

Patient identifier	Age (years)	Sex	Medical comorbidities	Source of infection	Site of infection	Organism	Resistance to therapy	Site to (change site)	Primary antibiotic therapy	Secondary antibiotic therapy	In hospital mortality	Out of hospital mortality
1	24	Male	Asymptomatic	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Yes	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Yes	Yes
2	28	Male	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Yes	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Yes	Yes
3	28	Male	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Yes	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Yes	Yes
4	28	Male	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Yes	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Yes	Yes
5	28	Male	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Yes	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Yes	Yes
6	28	Male	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Yes	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Yes	Yes
7	28	Male	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Yes	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Yes	Yes
8	28	Male	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Yes	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Yes	Yes
9	28	Male	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Yes	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Yes	Yes

Table 1. Site of the site infection and antibiotic therapy. *Resistant to therapy after completing antibiotic therapy.

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176. Streptococcus intermedius: A Study of 107 Isolates

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Session: 37. Bacteremia, CLABSI, and Endovascular Infections
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Background. *Streptococcus anginosus* (SA), *Streptococcus constellatus* (SC), and *Streptococcus intermedius* (SI) constitute the *S. anginosus* group (SAG). The majority of SI reports are single or few cases and small series. In a 2017 study of 263 cases of SAG only 36 (13.7%) were identified as SI, responsible for pyogenic nonbacteremic infections. Another study (2001) found 14 SI out of 122 SAG isolates of which 12 were from abscesses. In some reports, SI was only identified after molecular sequencing as original culture reports were negative. We present results of the analysis of 335 SAG isolates during a 3-year period with much higher numbers of SI (107) 32%, and bacteremia (17) 16% than previously reported. SI isolates exceeded *S. constellatus* (77) 23% with SA being the majority (45%) 151. Our study disclosed previously unreported sites of infection and differences in the type of bacteremia (monomicrobial vs. polymicrobial).

Methods. We reviewed the charts of 1321 Streptococcal isolates which included 335 SAG with 107 SI during the last 3 years, in patients admitted to our network hospitals. Age, sex, clinical findings, lab reports, procedures, imaging, and susceptibilities were analyzed.

Results. Age range was one month to 90 years with 167 males and 166 females. There were 335 SAG isolates, SA 151(67M/84F), SI 107(56M/51F) and SC 77 (47M/30F). 70% of SI patients were in the 40–80 age group. There were 17 SI bacteremias (all monomicrobial) compared with 26 SA (17%), with 14 (54%) polymicrobial and 11 SC with 5 polymicrobial (46%). 16 isolates were from empyema fluid, 11 related to IVDU, 9 liver abscesses, 6 perforated bowel, 3 peritonsillar abscesses, 3 breast abscesses, 3 mandibular osteomyelitis, 3 neck infections, 3 myositis, 3 pancreas associated, 1 each of mandibular sialadenitis, epidural abscess, cranial osteomyelitis, brain abscess, vertebral osteomyelitis and remainder soft-tissue infections in extremities or face. Some were related to poor oral hygiene or dental procedures. One abdominal wall infection was from a toothpick puncture. Twenty-five were polymicrobial infections. There were 4 deaths, three attributable to SI infection. All isolates tested (32) were susceptible to penicillin (MIC 0.008–0.125 µg/mL), ceftriaxone (MIC = 0.032–0.125 µg/mL) and vancomycin (MIC 0.38–1.0 µg/mL).

Conclusion. SI appears to be underreported. All SI bacteremias in the study were monomicrobial in contrast to 54% SA and 45% SC blood cultures with multiple organisms. The most common isolation site was empyema fluid. Almost all isolates appeared to originate from oral or gastrointestinal flora. Several of the sites encountered have not been reported previously. All isolates tested were susceptible to penicillin, ceftriaxone, and vancomycin.

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177. Clinical Outcomes of Daptomycin vs. Anti-Staphylococcal β-Lactams in Definitive Treatment of Methicillin-Susceptible Staphylococcus aureus (MSSA) Bloodstream Infections

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Background. The preferred management of patients with MSSA bacteremia includes definitive therapy with intravenous anti-staphylococcal β-lactam antibiotics. In β-lactam allergic or intolerant patients, daptomycin has been targeted as a viable alternative. The objective of this study was to assess clinical outcomes of daptomycin compared with nafcillin or cefazolin for the treatment of MSSA bacteremia.

Methods. This was a retrospective cohort study of patients hospitalized from November 1, 2011 to October 31, 2018 at The Ohio State University Wexner Medical Center with MSSA bacteremia. Patients treated with nafcillin, cefazolin or daptomycin were included with 1:1 random selection. The primary outcome was a composite of clinical failure, defined as a change in therapy due to persistent/worsening signs and symptoms, bacteremia recurrence or persistence, or inpatient infection-related mortality. Secondary endpoints included 30-day infection-related mortality, duration of

bacteremia, 30-day all-cause mortality and adverse events (AEs) necessitating a change in therapy.

Results. Among patients with MSSA bacteremia, 162 received at least one dose of daptomycin. Of those, 29 received at least 14 days of daptomycin and/or received daptomycin as definitive therapy and thus were included in the analysis. There was no difference in the primary outcome of composite clinical failure comparing daptomycin vs. nafcillin/cefazolin ($P = 0.71$). In addition, no difference was observed in 30-day infection-related mortality ($P = 0.51$), duration of MSSA bacteremia ($P = 0.9$), or 30-day all-cause mortality ($P = 0.64$). A higher number of AEs necessitating change in therapy were seen in the daptomycin group ($P = 0.0002$), reflecting initial β-lactam intolerance.

Conclusion. No difference in clinical failure was identified in patients treated with daptomycin vs. nafcillin/cefazolin suggesting that daptomycin may serve as a non-inferior alternative for treatment of MSSA bacteremia. A higher number of AEs occurred in the daptomycin group indicating β-lactam intolerance as a primary indication for daptomycin therapy. Given the small sample size, subsequent studies are needed to further evaluate the use of daptomycin in the treatment of MSSA bacteremia.

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178. Evaluation of Oral Antibiotic Stepdown Therapy for the Management of Gram-Negative Rod Bacteremia in a Tertiary Care Medical Center

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Background. Treatment strategies surrounding bacteremia are constantly changing as new data emerges. Transition from intravenous (IV) to oral (PO) antibiotics in patients with Gram-negative rod bloodstream infections (GNR BSI) remains controversial. The objective of this study was to characterize clinical outcomes in patients who received early (≤ 72 hours) vs. late (> 72 hours) stepdown therapy (ES vs. LS, respectively) for GNR BSIs.

Methods. A single-center, retrospective cohort study was conducted including adults with GNR BSIs admitted to a 610-bed tertiary care academic medical center between January 1, 2016 and December 31, 2017 who were transitioned from IV to PO antibiotics. Patients with severe renal impairment, inadequate source control, prolonged antibiotic course, HIV/AIDS, and pregnancy were excluded. The primary endpoint was clinical failure and secondary endpoints were 30- and 90-day all-cause mortality, duration of bacteremia, and adverse events.

Results. 164 patients (ES = 61; NS = 103) were included. Population median age was 63 years, 56% were male, and 19% were immunocompromised. Genitourinary source was most common (48.7%), while the most common organism isolated was *Escherichia coli* (52.4%). Most infections were community-acquired (70.1%) and the most common step-down therapy choice was ciprofloxacin in 75% of patients. There were no major differences in baseline demographic and clinical characteristics between groups except for the greater presence of central venous catheters (16.4% vs. 35.9%; $P = 0.006$) in the LS group. Overall clinical failure was 9.8% vs. 13.6% between the ES and LS groups, respectively. The LS group had a higher rate of clinical failure defined by escalation from PO to IV antibiotics (1.6% vs. 10.7%; $P = 0.03$). Patients who failed therapy tended to be immunocompromised and/or have an intra-abdominal source of infection. Secondary endpoints did not differ between groups.

Conclusion. Higher clinical failure rates in the LS group indicate that these patients may have underlying clinical characteristics not amenable to stepdown therapy. Choice of step-down therapy was not driven by the source of infection or patient acuity. Further analysis and studies are needed to determine optimal time and population for stepdown.

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179. Two Cases of Corynebacterium Striatum Prosthetic Valve Endocarditis Resulting in Opposing Outcomes

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Background. The *Corynebacterium* species is associated with bacteremia, cellulitis, and rarely, endocarditis. *Corynebacterium* endocarditis used to be an extremely rare disease; however, the development of mechanical devices boosted its prevalence, rendering it unignorable. This bacteria is also described as an emerging multi-drug-resistant pathogen.

Methods. We encountered two cases of *Corynebacterium striatum* prosthetic valve endocarditis, one of which was successfully treated. We failed to treat the other case despite prolonged medical treatment. We describe their clinical courses and literature review.

Results. (Case 1) A 74-old man was admitted to our hospital because of *C. striatum* prosthetic valve endocarditis. He relapsed twice despite treatment with adequate dosage and duration (6 weeks) of vancomycin during the first episode, and following daptomycin during the second episode depending upon the result of drug susceptibility. However, both medical treatments failed. He had refused surgery upon each hospitalization. He was treated with intravenous vancomycin and oral rifampin for 24