Background

- Daptomycin nonsusceptibility is reportedly emerging in all targeted gram-positive pathogens, however prevalence remains low and stable.
- Studies report a range of rates of Enterococcus faecium daptomycin nonsusceptibility (0.6%-19.5%).
- Current data suggests that daptomycin and linezolid are equally efficacious for the treatment of vancomycin resistant enterococcal (VRE) bacteremia.
- Theorized mechanism of enterococcal nonsusceptibility to daptomycin is due to increased bacterial cell surface positive charge, resulting in decreased daptomycin binding.
- Immunocompromised status, recent surgical history, exposure to 3rd generation cephalosporins or metronidazole, presence of indwelling devices, and high degree of comorbidities have been identified as risk factors for the development of daptomycin nonsusceptible enterococcal infections.
- 2011 literature search found limited data regarding daptomycin nonsusceptible enterococcal infections, and even fewer cases of daptomycin susceptible E. faecium infections.

Objectives

- This study was undertaken to increase current knowledge on daptomycin susceptible E. faecium (DSEF) versus daptomycin nonsusceptible E. faecium (DNSEF) bacteremias.

Methods & Study Design

- Retrospective analysis of electronic health record (EHR)
- Study period: September 2008-October 2013
- Daptomycin susceptibility determined by Microscan
- Institutional Review Board approved

Inclusion Criteria

- Age ≥ 18 years
- At least 1 positive blood culture for E. faecium
- Primary Endpoints:
  - Clinical and microbiologic response rates
  - Secondary Endpoints:
    - Hospital length of stay
    - 30-day mortality
    - In-hospital mortality

Exclusion Criteria

- Age < 18 years
- Age < years
- Mean APACHE II Score, n/SD
- Mean Charlson Comorbidity index, n/SD
- ICU Admission, n/SD
- Age, years
- SD
- SD
- SD
- SD
- SD

Results

- Number of patients: 35
- 60 patients with blood culture positive for E. faecium were evaluated
- 27/35 and 21/25 of patients in the DSEF and DNSEF groups, respectively did not receive antibiotics targeted per culture susceptibility due to patient expiration prior to susceptibility result or clinical improvement despite non-targeted therapy.

Limitations

- Small sample size
- Retrospective study design
- Microscan may overestimate rates of DNSEF
- Documentation in EHR prior to 2009 limited

Conclusion

- Patients with DNSEF bacteremias had a lower rate of clinical cure, higher mortality and more rapid time to mortality from index culture.
- Reducing the emergence and/or spread of DNSEF may reduce risk of poor clinical outcomes in patients with E. faecium bacteremias.

Disclosure

- The authors of this presentation have nothing to disclose concerning financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.