

**Hospital: Tri State**

**Presenter: Anubhav Kanwar**

Question/case summary:

Patient with E.faecalis, MRSA, and MSSA bacteremia and presumed endocarditis (including pacemaker, PORTCATH and Prosthetic Valve).

How would you optimize therapy for this patient?

UW TASP Recommendations:

Top 3 Treatment options selected by our panel:

**1.) Vancomycin + Ampicillin + Ceftriaxone**

PROS:

First line regimens for each MRSA and *E. faecalis* endocarditis

Provides combination therapy for *E.faecalis*

Optimal from availability/cost perspective

CONS:

Vancomycin is inferior to beta-lactams for MSSA

Ceftriaxone is not 100% accepted as an anti-MSSA agent in these cases (our panel felt mixed on this con)

Increased risk of AKI with beta-lactams + vancomycin

**2.) Daptomycin + Ceftaroline**

PROS:

Compelling *in vitro* data for rapid bactericidal activity

Regimen shown success in salvage therapy (i.e. persistent MRSA bacteremia >7 days, unable to achieve source-control)

CONS:

Little to no randomized, controlled data

Expensive

Little data for ceftaroline in enterococcal endocarditis

**3.) Daptomycin + Ampicillin**

PROS:

Compelling *in vitro* data for rapid bactericidal activity

Both agents have been well studied for enterococcus; daptomycin well-studied for *S. aureus*

Ampicillin narrower agent vs. ceftaroline and less expensive

CONS:

Frequency of ampicillin dosing can be cumbersome

Little to no controlled data, driven by case studies of combination therapy for *E.faecalis*

**4.) Vancomycin + gentamicin:**

Although recommended for enterococcal endocarditis for patients who are intolerant, this regimen is quite toxic and would be hesitant to use

Key principles with enterococcal therapy:

β-Lactam antibiotics lack bactericidal activity against enterococci when used as monotherapy, making treatment of systemic infections particularly challenging. Although *E. faecalis* is often susceptible to ampicillin, treatment failure of 60% and lack of bactericidal activity of cell wall–active agents (ie, penicillin G, ampicillin, vancomycin) prompted efforts to identify combination therapies that would yield a bactericidal effect in severe infections.

Nice Review of combination therapy for enterococcus

<https://academic.oup.com/cid/article/67/2/303/4829420>

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