Kentucky Antimicrobial Stewardship Innovation Consortium

Educational Pearl

Pick Your Poison: Vosyn, Vancopime, Veropenem

Empiric combination antibiotic therapy with an anti-pseudomonal beta-lactam and vancomycin is commonly employed in patients at risk for antimicrobial resistant bacteria and/or critically ill. Picking the best combination requires consideration of individual host factors and antibiotic characteristics. When it comes to common antibiotic combinations, how do you pick your poison?

Antibiotic Considerations

Antibiotic characteristics that are commonly considered during empiric selection include nephrotoxicity, *C. difficile* infection risk, and broad spectrum exposure leading to emergence of antimicrobial resistance.

Table 1. Relative nephrotoxicity, *C. difficile* infection risk, and antimicrobial spectrum of vancomycin in combination with piperacillin-tazobactam, cefepime, or meropenem

	Vosyn Vancomycin + piperacillin/tazobactam	**Vancopime** Vancomycin + cefepime	**Veropenem** Vancomycin + meropenem
Nephrotoxicity[1]	++*	+	+
C. difficile infection risk[1]	+	++	++
Broad spectrum	+	+	++

*Compared to alternative combinations, **no increase** in nephrotoxicity risk is seen with piperacillin-tazobactam + vancomycin when used for **short courses (≤ 72 hours**).[2]

Key Takeaway: Weigh risks for nephrotoxicity vs. *C. difficile* infection when selecting between Vosyn and Vancopime. Risk for acute kidney injury with Vosyn can be mitigated with de-escalation from Vosyn within 72 hours. Veropenem should be reserved in cases where there is concern for resistance.

References

1. Lee JD, Heintz BH, Mosher HJ, Livorsi DJ, Egge JA, Lund BC. Risk of Acute Kidney Injury and Clostridioides difficile Infection With Piperacillin/Tazobactam, Cefepime, and Meropenem With or Without Vancomycin. *Clin Infect Dis*. 2021;73(7):e1579-e1586. doi:10.1093/cid/ciaa1902
2. Schreier DJ, Kashani KB, Sakhuja A, et al. Incidence of Acute Kidney Injury Among Critically Ill Patients With Brief Empiric Use of Antipseudomonal β-Lactams With Vancomycin. *Clin Infect Dis*. 2019;68(9):1456-1462. doi:10.1093/cid/ciy724