Kentucky Antimicrobial Stewardship Innovation Consortium

Educational Pearl

Beat the Bug: Carbapenem-Resistant *Acinetobacter baumannii*

Acinetobacter baumannii is a gram-negative coccobacilli that is associated with opportunistic infections and healthcare exposure.[1] Treating infections due to carbapenem-resistant *A. baumannii* (CRAB) isolates is difficult due to limited antibiotic options.[2] Which antibiotics can be used to treat CRAB infections and what are some considerations for their use?

What guidance is available?

Guidance for the treatment of infections due to CRAB provided by the Infectious Diseases Society of America (IDSA) are summarized below.[2] Initial combination therapy is suggested in patients with moderate-severe infections. Monotherapy can be considered with clinical improvement or in mild infections.[2]

Table 1: Treatment Recommendations for CRAB Infections

	Antibiotic	Notes
1st Line	Durlobactam-**sulbactam**	- Preferred antibiotic for moderate-severe CRAB infections though has not been compared to ampicillin/sulbactam based antibiotic regimens - Combo with a carbapenem is preferred - Durlobactam protects sulbactam from beta-lactamases except metallo-β-lactamases
	Ampicillin-**sulbactam**	- Sulbactam is the active component; ampicillin has no activity against CRAB isolates - Amoxicillin-clavulanate is **not** an oral option due to minimal activity against CRAB isolates[3] - Do not combine with durlobactam-sulbactam - High-dose suggested by IDSA: 9 g IV q8h infused over 4 hours **OR** 27 g IV infused over 24 hours
	Minocycline	- High-dose suggested by IDSA: 200 mg IV/PO q12h - CLSI susceptible breakpoint recently adjusted from ≤ 4 µg/mL to ≤ 1 µg/mL; use caution when MIC > 1 µg/mL[4]
2nd Line	Tigecycline	- Do not combine with minocycline - Not suggested as monotherapy in bloodstream infections - High-dose suggested by IDSA: 200 mg IV x1 then 100 mg IV q12h - No breakpoints available for *A. baumannii* – use caution when MIC > 1 µg/mL[4]
	Polymixin B, colistin	- IDSA suggests against monotherapy - Polymixin B preferred over colistin in systemic infections due to better kinetics and reduced nephrotoxicity[5]
Last Line	Cefiderocol	- Consider preserving for other resistant gram-negative infections (e.g. metallo-β-lactamases)
Adjunct Only	Meropenem, imipenem	- Do not use as monotherapy - Combo with durlobactam-sulbactam is a preferred option suggested by the IDSA - High-dose suggested by IDSA: meropenem 2 g IV q8h over 3 hours **OR** imipenem 500 mg IV q6h infused over 3 hours

Key Takeaway: Antibiotic options are limited in carbapenem-resistant *A. baumannii* infections. Sulbactam-based regimens are the cornerstone of treatment. Initial combination therapy is preferred for moderate to severe infections, but monotherapy can be considered with clinical improvement or initially in mild infections.

References:

1. Howard A, O'Donoghue M, Feeney A, Sleator RD. Acinetobacter baumannii: an emerging opportunistic pathogen. Virulence. 2012;3(3):243-250. doi:10.4161/viru.19700
2. Tamma PD, Heil EL, Justo JA, Mathers AJ, Satlin MJ, Bonomo RA. Infectious Diseases Society of America 2024 Guidance on the Treatment of Antimicrobial-Resistant Gram-Negative Infections. Clin Infect Dis. Published online August 7, 2024. doi:10.1093/cid/ciae403
3. Higgins PG, Wisplinghoff H, Stefanik D, Seifert H. In vitro activities of the beta-lactamase inhibitors clavulanic acid, sulbactam, and tazobactam alone or in combination with beta-lactams against epidemiologically characterized multidrug-resistant Acinetobacter baumannii strains. Antimicrob Agents Chemother. 2004;48(5):1586-1592. doi:10.1128/AAC.48.5.1586-1592.2004
4. Clinical and Laboratory Standards Institute. M100: performance standards for antimicrobial susceptibility testing. 35 ed. 2025.
5. Tsuji BT, Pogue JM, Zavascki AP, et al. International Consensus Guidelines for the Optimal Use of the Polymyxins: Endorsed by the American College of Clinical Pharmacy (ACCP), European Society of Clinical Microbiology and Infectious Diseases (ESCMID), Infectious Diseases Society of America (IDSA), International Society for Anti-infective Pharmacology (ISAP), Society of Critical Care Medicine (SCCM), and Society of Infectious Diseases Pharmacists (SIDP). Pharmacotherapy. 2019;39(1):10-39. doi:10.1002/phar.2209

Created 2.12.25