KY Antimicrobial Stewardship Innovation Consortium

Educational Pearl

Clostridioides difficile (*C. difficile*) Risk and Antibiotics: How Can We Minimize Risk?

All antibiotics increase the risk of *C. difficile* infection (CDI), but not all antibiotics increase the risk the same. Risk varies across antibiotic classes and increases with longer lengths of therapy. Generally, the more disruption to the normal gastrointestinal (GI) flora occurs, the higher the risk of *C. difficile*.[1,2]

Antibiotic Selection Risk

Individual antibiotic or antibiotic class CDI risk vary across multiple studies and are generally summarized below.[3-7]

Low Risk	Moderate Risk	High Risk
Tetracyclines (e.g. doxycycline) Nitrofurantoin Aminoglycosides (e.g. tobramycin) Vancomycin	Trimethoprim-Sulfamethoxazole Penicillins 1st generation cephalosporins (e.g. cefazolin) Macrolides (e.g. azithromycin)	2nd generation cephalosporins (e.g. cefuroxime) 3rd generation cephalosporins (e.g. ceftriaxone) 4th generation cephalosporins (e.g. cefepime) Carbapenems Clindamycin Aztreonam Fluoroquinolones

Antibiotic Length of Therapy Risk

Longer lengths of antibiotic therapy cause more damage to the GI flora. One study found that compared to patients who got <4 days of antibiotic therapy, *C. difficile* risk was 3 times higher in patients who received 8-18 days of antibiotics. Using the shortest effective length of therapy helps minimize *C. difficile* risk.[8]

Key Takeaway: When multiple antibiotic options are available, the risk of *C. difficile* infection can be minimized by selecting the lowest risk antibiotic for the shortest recommended duration.

References:

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