Role of antimicrobial stewardship (AMS) & strategies for appropriate antimicrobial therapy

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Antimicrobial Stewardship (AMS) is a new “buzz word” that has resonated across the world because of the pandemic of antimicrobial resistance but is in essence a reshuffling of the classical teachings that have always been part of every ID fellowship and medical residency. Its mantra is selecting the most efficacious, narrowest spectrum and cost effective therapy to treat the most likely pathogens at the site of infection. It is essentially a TEAM effort utilizing multiple elements including formulary restriction, preauthorization and concurrent or post-therapy review and feedback. Supplemental strategies include education, de-escalation, streamlining, dose optimization, iv to po conversion and automatic stop dates. Successful programs also need microbiology and culture stewardship, environmental services and infection prevention elements. Despite these efforts the C-Suite must often be educated and convinced that AMS is a Quality measure related to patient outcomes and not just a budgetary line. Targeting abused and unnecessary antibiotics and overly broad or ineffective therapies coupled with attention to emergence of bacterial resistance are key elements of AMS. Problem organisms include resistant P. aeruginosa, ESBL E. coli, Carbapenemase-resistant Enterobacteriaceae and Acinetobacter spp. With the emergence of ESBL E. coli ST 131 H30Rxx whose global clonal expansion and its disproportionate association with sepsis has engendered the use of carbapenems as the treatment of choice in geographic areas of high prevalence and specific diseases as pyelonephritis and bacteremia. The emergence of multi-resistant P. aeruginosa has been related to the selective pressures of overuse of expanded cephalosporins, piperacillin-tazobactam, fluoroquinolones and class II carbapenems. CREs, which are often clonal, have emerged with the majority of reported cases selected by non-carbapenem antibiotics and require intense augmented Infection Control preventions to stop spread. Appropriate AMS therapy is a quality measure to improve morbidity and mortality that also can reduce length of stay with collateral financial benefit as well as improving the resistance rates.

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