Kentucky Antimicrobial Stewardship Innovation Consortium

Educational Pearl

The Clinically Non-Responding Patient

After starting empiric antibiotics, patients should be monitored for improvement. However, some patients will not improve in the expected time frame. When this happens, providers may opt to broaden empiric antimicrobials. Is this always appropriate? What else should be considered?

Is this diagnosis correct?

Many common infections lack gold-standard diagnostics and therefore are diagnosed clinically with a constellation of signs, symptoms, laboratory results, microbiologic results, and radiographic imaging. Therefore, incorrect diagnoses are common in clinical mimickers. A common example is pneumonia diagnosed in a patient with congestive heart failure. In one large cohort of hospitalized patients coded for pneumonia, 12% of patients were determined to be incorrectly diagnosed. Of those incorrectly diagnosed, 87.6% received full courses of antibiotics. Full courses of antibiotics (> 3 days) were associated with higher rates of antibiotic adverse events when compared with brief courses (≤ 3 days) (2.1% vs 0.4% p=0.03).[1] In patients where an alternative non-infectious diagnosis is suspected or identified, monitoring off antibiotics should be considered.[2]

Positive bacterial cultures can be distractors as is commonly seen in bacteriuria with altered mental status. Attributing non-specific symptoms to a "UTI" may lead to delays in identifying the true cause of the patient's symptoms.

Is source control needed?

Antibiotics alone may not be adequate for infections with significant bacterial foci. Lack of source control is a common cause of clinical non-response providing the basis of the saying "cut to cure". Below are examples of clinical scenarios where source control investigations or procedures may be warranted. Escalating antibiotic spectrum may not be necessary if lack of source control is the primary reason for treatment failure.

Clinical Scenario	Examples of Source Control Procedures/Investigations
Medical management initially trialed	• Removing a line in a central-line associated bloodstream infection[3] • Surgical debridement/amputation in a diabetic foot infections with poor circulation[4]
Initial work-up missed foci of infection	• Obtaining a transesophageal echocardiogram after a negative transthoracic echocardiogram in endocarditis[5] • Imaging to find possible developing renal abscess in a patient diagnosed with pyelonephritis[6]
Inadequate source control	• Repeating imaging or laparotomy in patients with complicated intra-abdominal infections[7] • Repeat debridements in necrotizing fasciitis[8]

Are the antibiotics adequate?

Guideline recommended or antibiogram driven empiric antibiotics provide activity against the most common pathogens. However, uncommon pathogens or antimicrobial resistant pathogens may be involved. Empiric escalation may be warranted in hemodynamically unstable patients, with subsequent de-escalation based on culture results and clinical improvement.

Key Takeaway: Patients who fail to respond to initial antibiotic therapy should be reevaluated for diagnosis, source control, and adequacy of antibiotics. Injudicious antibiotic escalation may be result in inappropriate broad-spectrum antimicrobial use and delays in time to accurate diagnosis or source control.

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