Antimicrobial Stewardship & COVID-19

**PRINCIPLES OF ANTIMICROBIAL STEWARDSHIP**

- Improve patient care by optimizing antibiotic use
- Minimizing broad-spectrum antibiotics (ie, fluoroquinolones)
- Decreasing antimicrobial resistance

**CHALLENGES IN COVID-19**

- Frequent overuse of antibiotics throughout COVID-19 pandemic
- Bacterial co-infection occurs in <10% of hospitalized patients with COVID-19
- 14.3% of ICU patients with COVID-19
- Empiric antibiotics NOT necessary unless signs of co-infection

**INVESTIGATIONS**

- Sputum Gram stain and culture
- Blood cultures for critically ill patients
- Urinalysis -> culture only if pyuria is present
- Methicillin-resistant Staphylococcus aureus (MRSA) polymerase chain reaction (PCR) from nares
- Lower respiratory tract multiplex PCR (if available)
- Bronchoalveolar lavage galactomannan, fungal culture in those with prolonged intubation

**SIGNs OF CO-INFECTION**

- Elevated White Blood Cell Count (>11K)
- New Lobar/Focal Consolidation on Imaging
- Purulent Sputum Production
- Septic Shock

**PRINCIPLES OF ANTIMICROBIAL TREATMENT**

- **Pneumonia**: Start with beta-lactam + macrolide or doxycycline; Add anti-pseudomonal or MRSA coverage if known risk factors; STOP MRSA coverage if PCR negative
- **Septic shock**: Start with broad-spectrum coverage, including *Pseudomonas* and MRSA; Treat known or suspected source per guidelines (eg, urinary tract infection, central line-associated bloodstream infection) and local antibiogram
- **De-escalate every 48-72 hours**:
  - If assessment does not support infection
  - If microbiologic workup negative and patient improving
  - If able to narrow therapy based on cultures


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