

Antibiotic Use in Hemodialysis

Opportunities for Antibiotic Stewardship
FMQAI: The Florida End Stage Renal Disease Network
Learning and Action Webinar

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Objectives

- To understand the benefits of antibiotic stewardship.
- To identify commonly used antibiotics in the hemodialysis setting.
- To identify three best practices for antibiotic stewardship for the hemodialysis setting.

What is Antimicrobial Stewardship?

- Appropriate use of antibiotics
- Goals of Antimicrobial Stewardship
 - Improve antibiotic selection
 - Optimize dose and duration of therapy
 - Recognize when antimicrobials are not needed

Right drug, for the right bug, in the right amount, for the right amount of time!

Why Antimicrobial Stewardship for Hemodialysis?

- High use of antibiotics in hemodialysis patients
 - One in three hemodialysis patients receive at least one antimicrobial dose per year
 - 35 month retrospective study of two outpatient hemodialysis units found an antimicrobial use rate of 32.9 doses per 100 patient months
- At risk for healthcare-associated infections
 - Higher hospitalization rates and use of healthcare services

So What's the BIG Deal?

- More than 70% of bacteria that cause Healthcare-associated Infections (HAI) are resistant to at least one of the drugs used most commonly to treat them
- Emergence and spread of multi-drug resistant organisms (MDRO)
 - Requires treatment with the second- or third-choice drugs that may be less effective, more toxic, and/or more expensive
 - Many MDROs are persistent in the environment

ANTIBIOTICS ARE A SHARED RESOURCE!

Adverse Outcomes

- Antibiotic use can lead to adverse outcomes
 - *C. difficile* infections
 - Increased risk for drug-drug interactions
 - If resistance develops,
 - Increased hospitalizations with longer stays
 - Increase risk of morbidity and death
- Increase in pharmacy costs

Antibiotic Use in Hemodialysis

Which antibiotic is most commonly prescribed for hemodialysis patients?

- Vancomycin

Followed by?

- Third or fourth generation cephalosporins
- Cefazolin (first generation)

Inappropriate Use

Approximately one third (1/3) of antibiotic use in outpatient hemodialysis units is inappropriate!

Inappropriate Use

- Administration of antibiotic when criteria for infection not met per national guidelines (52.9%)
 - Presumed bloodstream infections not meeting criteria accounted for almost half (48.6%) of these
- Failure to use more narrow-spectrum antimicrobial on the basis of culture results (26.8%)
- Administration of antibiotic when indications for surgical prophylaxis not met (antimicrobials were not indicated or continued beyond 24 hours post procedure in the absence of infection) (20.3%)

Antimicrobial Stewardship Strategies

- Infectious Disease Society of America (IDSA) and Society for Healthcare Epidemiology (SHEA) core and supplemental strategies
- Focus on acute care settings
- Core strategies
 - Prospective audit with intervention and feedback
 - Formulary restriction and preauthorization
- Supplemental Strategies
 - Examples include streamlining or de-escalating therapy, antimicrobial order forms, guidelines and clinical pathways

Unique Aspects of Antimicrobial Stewardship in Hemodialysis

- Order for antimicrobials from outside of the dialysis center
 - Antimicrobials prescribed at time of hospital procedure and not discontinued
- Role of nurses and physician extenders
- Limited resources

Keys To Success

- Identify the problem
 - Collect data to identify specific opportunities for improvement in your facility
- Senior management support, leaders or “champions” for the cause, and expertise
- Policies/procedures to support obtaining culture results, and ensuring patients meet indications for therapy
 - Improve documentation of symptoms
- Ensure patient symptoms are communicated to physician before prescribing

Antibiotic Stewardship: Hemodialysis

- Antimicrobial Order Forms
 - Checklist for indications for use
 - Justification required for use
- De-escalating Therapy
 - Review culture results
 - More narrow spectrum antibiotic
 - Right drug for the right bug?
- Prospective audit with intervention and feedback
 - Vancomycin indicated? Can duration be shortened?



VERIFY

Before first dose administration,

- Were cultures ordered and sent?
- What is the indication? Is this diagnosis still likely?
- What is the planned duration?

On Day 2-3,

- Are final cultures back?
- If so, discuss the culture result with sensitivities to the doctor for discussion about least broad spectrum antibiotic available for treatment?

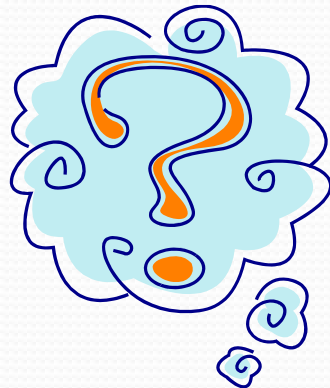


Did You:

- Check dose and duration of antibiotic before administering?
- Discuss the final culture result with sensitivities to the doctor for discussion about least broad spectrum antibiotic available for treatment?
- Verify no medication changes or updated culture results were received after medication labels were printed?

Thank You!

Questions?



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