Antibiotic Stewardship in the Long Term Care Setting

Linda U. Hitchcock, MD, FAAFP, CAQ, CMD
Barnes Healthcare Management, L.L.C.
Disclosure Statement

• I have no affiliations and/or conflict of interests that would apply to this presentation other than the fact that I am an employee of Barnes Healthcare Management, L.L.C.

• L. Hitchcock, MD
General Introduction

• Geriatric population increases make them the fastest growing patient group. By 2030, 20% of our population will be older than 65.
• 83% of LTC residents will need help with 3 or more ADLs.
• 27% of these elderly patients will have more than 9 medications prescribed.
• 65% of these residents will have adverse drug events with 1 in 7 sent to the hospital.
Infections and Older Adults

• Infection is a major source of morbidity and mortality in the LTC setting
• Infection is associated with more than 1/3 of all deaths of LTC residents over 65.
• Most deaths are from pneumonia, influenza, and UTIs.
• Functional decline after an infection is common and delays recovery.
What Are the Common Infections in LTC Facilities?

• Community Acquired Pneumonia
• UTI
• Influenza
• Skin/Soft Tissue
• Wounds
• Clostridium Difficile
• Others such as conjunctivitis, otitis media, etc.
Factors that Predispose Infection in Older Adults

- Decreased cough reflex
- Poor skin integrity
- Decreased gastric acidity
- Malnutrition
- Comorbid conditions: DM, stroke, vascular disease, COPD
- Devices and procedures (Foley catheter, PICC lines, etc.)
- Institutionalism
- Constipation: Causes urinary retention
Atypical Presentations

• Resident may lack typical signs and symptoms
• Lack of fever is common
• Infection may present with non-specific decline.
• Symptoms may include delirium, tachypnea, and anorexia
• Exacerbation of underlying illness is prominent (hyperglycemia, atrial fibrillation as examples).
• Lower threshold for detailed assessment for infection a must
• No leukocytosis in 40% of older adults with infections.
Community Acquired Pneumonia

• Respiratory Tract Infections are the leading cause of referral to a hospital.
• Older patients have fewer symptoms than younger patients.
• The most common Bacterial pneumonia is Streptococcus Pneumoniae.
• Atypical presentations include legionella and chlamydia.
• Aspiration is also common and often not diagnosed.
Tools for Your Workup of Suspected Pneumonia

• After clinical evaluation of signs and symptoms that suggest pneumonia, the following steps should be performed.

  • CBC with differential: This is helpful in diagnosis if WBC and neutrophil counts are elevated.
  • CMP to evaluate for dehydration or other electrolyte abnormality which can contribute to altered mental status.
  • Chest x-ray: This will evaluate for infiltrate and/or effusions.
  • CURB 65 risk stratification tool.
Pneumonia Evaluation and Treatment

- CURB 65 (Risk stratification for outpatient vs. inpatient treatment): Scoring system used in outpatient, ED or LTC setting.

  - Five clinical features:
    - Confusion 1 point
    - Bun > or = 20 1 point
    - Respiratory Rate >/= 30 Breath/min 1 point
    - Systolic BP < 90 or Diastolic BP </= 60 1 point
    - Age > 65 1 point
How to Apply CURB 65

• If cumulative score 0-1 most likely you can safely treat as an outpatient.
• If cumulative score is 2, this will suggest closely supervised outpatient treatment or inpatient observation/admission.
• If score is 3, 4 or 5, the patient will need inpatient treatment.

• CURB 65 is a tool to help make the clinical judgement regarding admission to an inpatient setting.
Pneumonia Antibiotic Treatment

• Outpatient setting: Use respiratory quinolones.
  • Levofloxacin
  • Moxifloxacin
  • Gemifloxacin

• Do not use Ciprofloxacin since it does not cover streptococcus.
Healthcare Associated Pneumonia

- Acquired as a consequence of receiving treatment within a healthcare setting for some other condition.
  - Nursing home/LTC patient
  - Dialysis patients
  - Patients on home IV therapy
  - Patients with history of multiple hospitalizations
  - Often requires hospitalization

Obtain sputum cultures, blood cultures, chest x-ray, CBC, and CMP.
Treatment of HCAP

• Vancomycin + Cefepime  OR
• Piperacillin-Tazobactam  OR
• Meropenem

Alternate Treatments:
  Tobramycin OR
  Levaquin OR
  Cipro

Length of treatment: 7-14 days
If multidrug resistant (MDR), coverage initially broad then taper once cultures are available.
Influenza

• Clinical diagnosis is based on the following:
  • Acute onset of fever
  • Cough
  • Myalgia
  • These alone can be used in peak influenza seasons.

• PCR is highly sensitive and differentiates between influenza types.
Treating Influenza-Antiviral Treatment

• Indicated for patients with severe disease or at risk for complications.
• Most effective within 48 hours of symptoms onset but should treat even if greater than 48 hours if progressive, severe or complicated illness.
• Treat with Oseltamivir oral x 5 days. (Amantadine not effective.)
• Use Oseltamivir as prophylaxis in outbreak setting.
• Immunization for patients and staff are needed to protect against other flu strains.
UTI

• UTI is the second most common infection in the LTC setting.
• A UTI is the most common cause of hospitalization for a bacterial infection.
• Chronic asymptomatic bacteriuria is more prevalent than symptomatic bacteriuria.
UTI Risk Factors

• Aging disrupts acquired immunity due to T cell dysfunction and blunted Cytokine medicated inflammatory response.
• Estrogen deficiency causes vaginal prolapse and urinary incontinence promoting ascending flow of bacteria into the urinary tract.
• Loss of estrogen impairs protective action of colonization of Lactobacillus which suppresses grow of pathogenic bacteria.
• BPH increases the risk of urinary retention. This causes calculi that trap bacteria and cause recurrent UTI.
When Do You Need a Urine Culture

• Urinary symptoms:
  • Frequency
  • Urgency
  • Dysuria
  • Gross Hematuria
  • New onset or worsening of urinary incontinence
  • Suprapubic pain
  • Flank pain
  • Fever
  • New onset delirium
When NOT to Check a Urine Culture

• Isolated leukocytosis on urine dip or urinalysis
• Odor or change in color of urine
• After a mechanical fall
• Fever or new onset delirium with other likely explanations
Treating the UTI

• Await culture results unless dysuria or ill.
  • Follow sensitivities of culture results for appropriate antibiotics.

• Oral and/or IV antibiotic treatment is based on underlying diseases, prior antibiotics, residence, and severity of illness.

• Also based on category of UTI:
  • Uncomplicated-lower tract, healthy female
  • Complicated-male, urologic abnormality, stones, upper tract
  • Catheter-associated UTI

Treat healthy women with lower UTI 3-7 days.
Indwelling urinary catheters are more likely to have resistant gram-negatives.
Treat ONLY if patient is symptomatic even if culture is positive.
McGeer’s Criteria

No Catheter Need 3 of Below
- Fever or chills
- New or increased burning pain
- New flank or suprapubic pain
- Change in character of urine or gross hematuria
- Change in mental and/or functional status

Indwelling Catheter Need 2 of Below
- Fever or chills from no other source
- New flank or suprapubic pain
- Change in character of urine or gross hematuria
- Change in mental and/or functional status
Asymptomatic Bacteriuria

• The definition is “Isolation of bacteria in an appropriately collected urine culture from a patient without signs or symptoms of a UTI”.
• Common in patients with indwelling urinary catheters.
• Do NOT treat in most circumstances.
• DO NOT obtain urine culture unless symptomatic.
• DO NOT treat positive urine culture if patient is asymptomatic.
• DO TREAT prior to urologic intervention and/or neutropenia.
Catheter Associated UTI (CA UTI)

- History/exam/labs are all required for diagnosis.
  - New onset or worsening signs/symptoms
  - No other identified source
  - Greater than 10 x 3 cfu/ml colony forming units of bacteria
  - To prevent CAUTI, limit catheter use
  - Incontinence is not an indication for a urinary catheter
  - Remove catheters as soon as possible
  - Use appropriate pre and post insertion practices
  - Change Foley or catheter if positive UTI.
Drug Resistant Pathogens

- Highly resistant organisms associated with LTCFs and LTACHs to include hospitals.
- The pathogens: ESKAPE pathogens
  - *Enterococcus faecium* (vancomycin resistant)
  - *Staphylococcus aureus* (MRSA, VISA, VRSA)
  - *Klebsiella pneumoniae* (Extended spectrum beta-lactamases (ESBL) and Carbapenem Resistant Enterobacteriaceae (CRE)
  - *Acinetobacter baumannii*
  - *Pseudomonas aeruginosa*
  - *Enterobacter species*
Approach to Recurrent UTIs

- Establish re-infection to relapse (occurs sooner).
- Gynecologic and urologic evaluation
- Correct cystoceles (surgery, pessary)
- Post void residual, urodynamics and cystoscopy as indicated.
- Behavior changes, i.e., timed voiding.
- Topical estrogen cream
- Cranberry may decrease bacteriuria.
- Antimicrobial prophylaxis occasionally necessary.
C Diff in Older Adults

• Advanced age is a strong risk factor for CDI.
• Older adults have the following:
  • Increased severity of CDI
  • Increased treatment failures
  • Higher relapse rate
  • Increased attributable mortality
• Diagnosis
  • High suspicion for recent antibiotic use, foul smelling, loose stools, frequent stools.
  • Complaints of fever and abdominal pain.
  • Combination of EIA GDH and EIA toxin A/B.
CDI Management

- Stop unnecessary antibiotics.
- Avoid antiperistaltics and proton pump inhibitors.
- Specific treatment depends on severity.
  - Mild: Metronidazole 500 mg Q8hr x 10-14 days
  - Moderate to Severe: Vancomycin 125 mg Q6hr x 10-14 days
Approach to CDI Occurrence

• CDI recurrence is common.
  • First episode: 15-35 % recurrence
  • Greater than 2 episodes: 33-65%
  • Recurrence happens as a result of poor immunity, reinfection or antibiotics.
  • Not related to antibiotic resistance.
  • Can use initial treatment agent for first relapse.
• Recurrent CDI treatment:
  • Vancomycin is preferred.
  • Avoid systemic antibiotics!
  • Pulse/taper Vancomycin, Fidaxomicin (Dificid) and fecal microbiota therapy.
Chronic Bronchitis with Acute Exacerbation

- This is almost always in smokers with COPD.

**Symptoms:**
- Increased Dyspnea
- Increased sputum viscosity/purlent
- Increased sputum volume
- Fever + or –

**Treatment:**
- Mild to moderate: Amoxicillin 500 mg TID. Can use Doxycycline or Bactrim.
- Severe: Augmentin 875 mg/125 BID. Can use Azithromycin or Cephalosporin or Levofloxacin.
- Treatment 3-10 days.
Things You Can Do to Prevent Infections

• Infection Control:
  • Hand Hygiene!!!!
  • Clean equipment
  • Contact precautions should be in place especially with open wounds or uncontrolled secretions.

Antimicrobial Stewardship:
  ❖ Antimicrobial “time-out”
  ❖ Narrowest spectrum possible
  ❖ Are antibiotics helping the patient and are consistent with goals of care?
  ❖ Are antibiotics appropriate at end of life?
Have You Introduced Interact to Your Facility?

• Interact is a program utilized in daily care in nursing facilities to reduce acute care transfers as well as improving communication, quality, and provide support tools for symptom management.

• The program was introduced several years ago with the support of CMS to provide guidelines and evaluation tools to help LTCs reduce acute care transfers. The program has expanded to provide support for assisted living facilities, home health, and other venues that provide care to elderly patients.

• You can access more information at interact2.net.

• You will find Care Paths for UTI and pneumonia in addition to other topics which may benefit your facility and staff.