Take 3 – Practical Practice Pointers© October 28, 2019 Edition

Actually, "Take 2" this week: New CAP Guideline, E-Scooter Injuries

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From the Guidelines and the ATS/IDSA

1) Diagnosis and Treatment of Community-Acquired Pneumonia 2019

Community-acquired pneumonia (CAP) is a leading cause of morbidity and mortality worldwide and is the second most common cause of hospitalization and the most common infectious cause of death in the US. The clinical presentation of CAP varies, ranging from mild pneumonia characterized by fever and productive cough to severe pneumonia characterized by respiratory distress and sepsis. Nearly 9% of patients hospitalized with CAP will be rehospitalized due to a new episode during the same year. Risk rises with age, with the annual incidence of hospitalization among adults ≥65 being three times that of the general population.

The American Thoracic Society (ATS)/Infectious Diseases Society of America (IDSA) *ad hoc* committee on community-acquired pneumonia (CAP) in adults recently published a guideline updating their 2007 guideline.

Criteria for "severe" CAP (must have at least one major and 3 minor criteria):

- Major: septic shock with pressors; respiratory failure with mechanical ventilation.
- Minor: RR ≥ 30, PaO2/FiO2 ratio < 250, muitilobar infiltrates, confusion or disorientation, uremia (BUN ≥ 20), leukopenia (WBC < 4,000), thrombocytopenia (< 100,000), hypothermia (< 36 C), hypotension requiring aggressive fluid resuscitation

General Recommendations:
Outpatient

- Do not obtain sputum Gram stain and culture routinely (strong recommendation).
- Do not obtain blood cultures (strong).

Inpatient:

- Obtain pretreatment Gram stain and culture of respiratory secretions in adults with CAP managed in the hospital setting who:
  1. are classified as severe CAP, especially if they are intubated (strong recommendation, very low quality of evidence); or
  2. a. are being empirically treated for MRSA or *P. aeruginosa* (strong); or
     b. were previously infected with MRSA or *P. aeruginosa*, especially those with prior respiratory tract infection (conditional recommendation); or
     c. were hospitalized and received parenteral antibiotics, whether during the hospitalization event or not, in the last 90 days (conditional).
- Do not routinely obtain blood cultures (conditional).
- Do obtain pretreatment blood cultures with hospitalized CAP classified as severe OR are being empirically treated for MRSA or *P. aeruginosa,* were previously infected with MRSA or *P. aeruginosa*, especially those with prior respiratory tract infection, or were hospitalized and received parenteral antibiotics, whether during the hospitalization event or not, in the last 90 days (conditional).
- Do not routinely test urine for pneumococcal antigen unless severe (conditional).

- Do not routinely test urine for *Legionella* antigen in adults with CAP (conditional, low quality of evidence), except in cases of a *Legionella* outbreak or recent travel (conditional); in adults with severe CAP (conditional).
- Test for *Legionella* urinary antigen and collect lower respiratory tract secretions for *Legionella* culture on selective media or *Legionella* nucleic acid amplification testing in adults with severe CAP (conditional).
- When influenza viruses are circulating in the community, test for influenza with a rapid influenza molecular assay (i.e., influenza nucleic acid amplification test), which is preferred over a rapid influenza diagnostic test (i.e., antigen test) (strong).
- In addition to clinical judgement, use a validated clinical prediction rule for prognosis, preferentially the Pneumonia Severity Index (PSI) (strong recommendation) over the CURB-65 (tool based on confusion, urea level, respiratory rate, blood pressure, and age ≥65) (conditional recommendation) to determine the need for hospitalization in adults diagnosed with CAP.
- Initiate empiric antibiotic therapy in clinically suspected and radiographically confirmed CAP regardless of initial serum procalcitonin level (strong).

Outpatient Treatment:

- For <u>healthy</u> outpatient adults without comorbidities listed below or risk factors for antibiotic resistant pathogens:
    - Monotherapy:
        - amoxicillin 1 g three times daily (strong recommendation), or
        - doxycycline 100 mg twice daily (conditional recommendation), or
        - a macrolide (azithromycin 500 mg on first day then 250 mg daily or clarithromycin 500 mg twice daily or clarithromycin extended release 1,000 mg daily) only in areas with pneumococcal resistance to macrolides <25%.
- For outpatient adults with <u>comorbidities</u> such as chronic heart, lung, liver, or renal disease; DM; alcoholism; malignancy; or asplenia (in no order of preference):
    - Combination therapy:
        - amoxicillin/clavulanate 500 mg/125 mg three times daily, or amoxicillin/clavulanate 875 mg/125 mg twice daily, or 2,000 mg/125 mg twice daily, or a cephalosporin (cefpodoxime 200 mg twice daily or cefuroxime 500 mg twice daily); **AND**
        - macrolide (azithromycin 500 mg on first day then 250 mg daily, clarithromycin [500 mg twice daily or extended release 1,000 mg once daily]) (strong), or doxycycline 100 mg twice daily (conditional); OR
    - Monotherapy:
        - respiratory fluoroquinolone (levofloxacin 750 mg daily, moxifloxacin 400 mg daily, or gemifloxacin 320 mg daily) (strong).
    - A third option for adults with CAP who have contraindications to both macrolides and fluoroquinolones is:
        - combination therapy with a β-lactam (ampicillin + sulbactam, cefotaxime, ceftaroline, or ceftriaxone, doses as above) and doxycycline 100 mg twice daily (conditional).

Inpatient Treatment:

- Abandon the use of the categorization of healthcare-associated pneumonia (HCAP) to guide selection of extended antibiotic coverage in adults with CAP (strong).

- In inpatient adults with nonsevere CAP without risk factors for MRSA or *P. aeruginosa,* use the following empiric treatment regimens (in no order of preference)
    - combination therapy with a β-lactam (ampicillin + sulbactam 1.5–3 g every 6 h, cefotaxime 1–2 g every 8 h, ceftriaxone 1–2 g daily, or ceftaroline 600 mg every 12 h) and a macrolide (azithromycin 500 mg daily or clarithromycin 500 mg twice daily) (strong), or
    - monotherapy with a respiratory fluoroquinolone (levofloxacin 750 mg daily, moxifloxacin 400 mg daily) (strong).
- Do not routinely add anaerobic coverage for suspected aspiration pneumonia unless lung abscess or empyema is suspected (conditional).
- Only cover empirically for MRSA or *P. aeruginosa* if locally validated risk factors for either pathogen are present (strong).
- Empiric treatment options for MRSA include vancomycin (15 mg/kg every 12 h, adjust based on levels) or linezolid (600 mg every 12 h). Empiric treatment options for *P. aeruginosa* include piperacillin-tazobactam (4.5 g every 6 h), cefepime (2 g every 8 h), ceftazidime (2 g every 8 h), aztreonam (2 g every 8 h), meropenem (1 g every 8 h), or imipenem (500 mg every 6 h).
- If currently covering empirically for MRSA or *P. aeruginosa* on the basis of published risk factors but don't have local etiological data, continue empiric coverage while obtaining culture data to establish if these pathogens are present to justify continued treatment for these pathogens after the first few days of empiric treatment (strong).
- Do not routinely use corticosteroids in nonsevere CAP (strong).
- Do not routinely use corticosteroids in severe CAP (conditional)
- Do not routinely use corticosteroids in severe influenza pneumonia (conditional).

Duration of Treatment:

- The duration of antibiotic therapy should be guided by a validated measure of clinical stability (resolution of vital sign abnormalities, ability to eat, and normal mentation), and antibiotic therapy should be continued until the patient achieves stability and for no less than a total of 5 days (strong).
- For those whose symptoms have resolved within 5 to 7 days, do not routinely obtain follow-up chest imaging (conditional).

CAP with a Positive Test for Influenza:

- Antiinfluenza treatment, such as oseltamivir, should be prescribed for those with CAP who test positive for influenza in the inpatient (strong) or outpatient (conditional) setting, independent of duration of illness before diagnosis.
- Standard antibacterial treatment should be initially prescribed for adults with clinical and radiographic evidence of CAP who test positive for influenza in the inpatient and outpatient settings (strong).

My Comment:

I devoted extra space to review this guideline as it is one all of us need to be aware of. If you read nothing else from this Pointer, go back and re-read the treatment for outpatient CAP (healthy and with co-morbidities). There are some subtleties that are important to note. Likewise regarding duration of treatment.

Reference:

Metlay JP, et al. Diagnosis and Treatment of Adults with Community-acquired Pneumonia. An Official Clinical Practice Guideline of the ATS and IDSA. Am J Respir

Crit Care Med. 2019 Oct 1;200(7):e45-e67. Article

A Brief From the World of Public Health

2) Dockless Electric Scooters and Initial Injury Profiles

Rentable dockless electric scooters (e-scooters) are shared electric-assisted scooters that are an emerging form of transportation being introduced in cities nationwide. E-scooters are rented for short periods of time via a phone application, have a narrow platform where the rider generally stands with one foot in front of the other, and travel at speeds up to approximately 15 miles per hour.

The Austin, TX Health Department collected data over a 3-month period in late 2018, six months after the introduction of e-scooters to the city. Calculations show that there were 20 individuals injured per 100,000 e-scooter trips taken during the study period. Of the 190 injuries documented, 1/3 sustained injuries on their first ride, 48% had injuries to the head, 70% to the upper limbs, 55% to the lower limbs, 18% to the chest/abdomen, with 35% having fractures, with 20% of those having multiple fractures. Multiple injuries were common, with 50% having injuries classified as severe. Fifteen percent of riders had evidence suggestive of traumatic brain injury. Less than 1% were wearing a helmet at the time of injury. There were 14% of all injured riders hospitalized, and none died during the study period. Drinking an alcoholic beverage in the 12 hours preceding their injury was reported by 29%.

My Comment:
The city of Roanoke just introduced e-scooters last week, and as I watched some seemingly quite crazy “scooter behavior” from my office window, I was left wondering what we know about the safety of these devices. After reading this study, I conclude we have yet another public health experiment in action (vaping being the other most recently covered in Take 3). They appear to be an injury attorney’s dream! It will be interesting to see over time if reports of non-riding pedestrian injuries start emerging as well. and how they will be regulated. For now, let the rider (and driver, and pedestrian) beware.

Reference:
Austin Public Health: Dockless Electric Scooter-Related Injuries Study. April 2019: Link

Feel free to forward Take 3 to your colleagues. Glad to add them to the distribution list.

Mark

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