Acute Presentation in LTC and How to manage them

Vu Kiet Tran, MD, MHSc, MBA, CHE

CFPC CoI Templates: Slide 1 – used in Faculty presentation only.

Faculty/Presenter Disclosure

- **Faculty:** Dr. Vu Kiet Tran

- **Relationships with financial sponsors:**
  - **Grants/Research Support:** None
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  - **Other:** Equity owner in LC Pharmacy

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- **This program has not received financial support**
- **This program has not received in-kind support.**

- **Potential for conflict(s) of interest:**
  - The speaker has no financial support from any organization

Mitigating Potential Bias

- There are no slides about LC Pharmacy or any of its products

Case 1a

- You are on-call and Staff calls you…
  - Ms. Smith urine analysis returned with positive protein and leukocytes

- What antibiotic would you like to prescribe?

Case 1b

- You are on-call and Staff calls you…
  - Ms. Smith urine analysis returned with positive protein, leukocytes, and Nitrites

- What antibiotic would you like to prescribe?

Case 1c

- You are on-call and Staff calls you…
  - Ms. Smith urine culture returned with E.Coli
  - It is "sensitive to Cipro, TMP-SMX, Fosfomycin"

- What antibiotic would you like to prescribe?

“Cipro-deficiency” dipstick

Asymptomatic bacteriuria

- Very common in the older patient
- Female more than male
- Institutionalized residents more than community dwellers
- ***Abnormal urine does not always indicate UTI as the cause of their symptom(s)***

Who should be treated?

- Who should be treated?
  - Pregnant patients
  - Patients undergoing a urologic procedure that may produce mucosal bleeding
  - Immunosuppressed (eg, renal transplantation patients).
- Who should ***NOT*** be treated?
  - Diabetic persons
  - Elderly individuals
  - Patients with indwelling catheters

What is ***NOT*** an UTI

- These elements on their own are NOT diagnostic of UTI:
  - Worsening functional status
  - Worsening mental status (increased confusion, delirium, agitation)
  - Cloudy urine
  - Smelly urine
  - Change in urine color
  - Falls
  - Dehydration

MINIMUM CRITERIA FOR UTI (MODIFIED LOEB CRITERIA[1,2])

In a non-catheterized resident:	In a catheterized resident:
• Acute dysuria <u>or</u> 2 or more of the following: • fever [> 37.9°C (100°F) or a 1.5° C (2.4°F) increase above baseline on at least two occasions over the last 12 hours] • new or worsening urgency • frequency • suprapubic pain • gross hematuria • flank pain • urinary incontinence	• Any one of the following after alternate explanations have been excluded: • fever [> 37.9°C (100°F) or a 1.5° C (2.4°F) increase above baseline on at least two occasions over the last 12 hours] • flank pain • shaking chills • new onset delirium

[1] Note that these are clinical criteria validated for diagnosis for UTI and differ from criteria that are used for surveillance.
[2] Note that confusion alone is not symptom of UTI in non-catheterized resident.

Choosing Wisely Canada

UTI Program: Assessment algorithm for urinary tract infections (UTIs) in medically stable non-catheterized residents

I think my resident may have a UTI

Stop. Assess resident

Does resident have:

Clinical Signs & Symptoms of a UTI

Resident has new difficult or painful urination (Acute dysuria)

Or

Two or more of the following:

- Fever (Oral temperature greater than 37.9°C or 1.5°C above baseline on 2 consecutive occasions within 12 hours)
- New flank pain or suprapubic pain or tenderness
- New or increased urinary frequency, urgency
- Gross Hematuria
- Acute onset of delirium in residents with advanced dementia*

OR

Non-specific symptoms only

- Worsening functional status
- Worsening mental status (e.g., new behavioural changes, increased confusion, acute delirium or agitation)

***Notes:**

- Behavioural changes on their own do not indicate a UTI unless clinical symptoms develop (see box above):
- Falls should not be considered a presentation of infection

Encourage and Monitor, Assess, and Discuss

1. **Encourage and monitor** increased fluid intake for the next 24 hours, unless resident has clinical contraindications.
2. **Discuss** with physician or nurse practitioner.
3. **Obtain urine culture.** If empiric antibiotics are prescribed, collect urine specimen for culture and susceptibility before antibiotic therapy is initiated. Urine specimen can be obtained as a mid-stream or in/out catheter specimen.

Review, Reassess, and Consult

Review urine culture results:

- Bacterial count greater than 10^8 CFU/L, with signs and symptoms is compatible with UTI.
- More than two (2) different organisms indicates contamination

Reassess resident for signs and symptoms:

- Consult with the resident's physician or nurse practitioner (NP) about the urine culture results and the resident's status.

Antibiotic therapy

Physician or NP should reassess antibiotic therapy based on:

- Treatment need
- Antimicrobial susceptibility
- Route of administration
- Prescribed duration

Encourage and Monitor, Assess, and Discuss

1. **Encourage and monitor** increased fluid intake for the next 24 hours, unless resident has clinical contraindications.
2. **Assess** for constipation and other causes of behaviour change.
3. **Discuss monitoring** with physician or nurse practitioner.

Reassess for UTI signs and symptoms after 24 hours

UTI symptoms develop

Yes → Encourage and Monitor, Assess, and Discuss (Obtain urine culture)

No

- **No urine culture required.**
- **No UTI treatment required.**
- **Assess further regarding cause of non-specific symptoms.**

This resource is part of Public Health Ontario's Urinary Tract Infection (UTI) Program. For more information please visit www.publichealthontario.ca/UTI or email ipac@oahpp.ca.

Case 2a

- You are on-call and Staff calls you…
  - Ms. Smith is c/o dysuria and frequency since yesterday
  - Her last UTI was 2 months ago and she was treated with Cipro

- What antibiotic would you like to prescribe?

Case 2b

- You are on-call and Staff calls you…
  - Ms. Smith is c/o dysuria and frequency since yesterday
  - Her last urine culture grew ESBL

- What antibiotic would you like to prescribe?

Complicated UTI

- Immunocompromised
- Sepsis in setting of UTI
- Male
- Recent instrumentation
- Urinary catheter/tube
- Structural abnormality
- Renal stones

Treatment of Uncomplicated UTI

- Uncomplicated UTI
  - Beta-lactam antibiotics
    - Amoxicillin 500mg tid for 3-7 days
    - Amoxicillin-clavulanate 500mg bid for 3-7 days
  - Nitrofurantoin (but avoid is CrCl < 35) 100mg bid for 5-7 days
  - Trimethoprim-sulfamethoxazole (TMP-SMX) DS bid for 3 days
  - Fosfomycin 3g po od x 1 single dose

Treatment of Uncomplicated UTI

- Uncomplicated UTI
  - Cephalexine 500mg tid for 5-7 days
  - Cefadroxil 1g once daily for 5-7 days
  - Cefuroxime 500mg bid 5-7 days
  - Cefaclor 500mg tid for 5-7 days
  - Cefixime 400mg od or 200mg bid x 1 day

Treatment of Complicated UTI

- Complicated UTI
  - TMP-SMX DS 1 tab bid for 7-14 days
  - Amoxicillin-clavulanate 875mg bid for 10-14 days
  - Fluoroquinolones
    - Ciprofloxacin 500mg bid for 7 days
    - Levofloxacin 750mg po once daily for 5 days
    - Moxifloxacin 400mg po once daily for 5 days

Treatment of uncomplicated Pyelonephritis

- Uncomplicated pyelonephritis
  - TMP-SMX DS 1 tab bid for 14 days
  - Amoxicillin-clavulanate 875mg bid for 10-14 days
  - Fluoroquinolones
    - Ciprofloxacin 500mg bid for 7 days

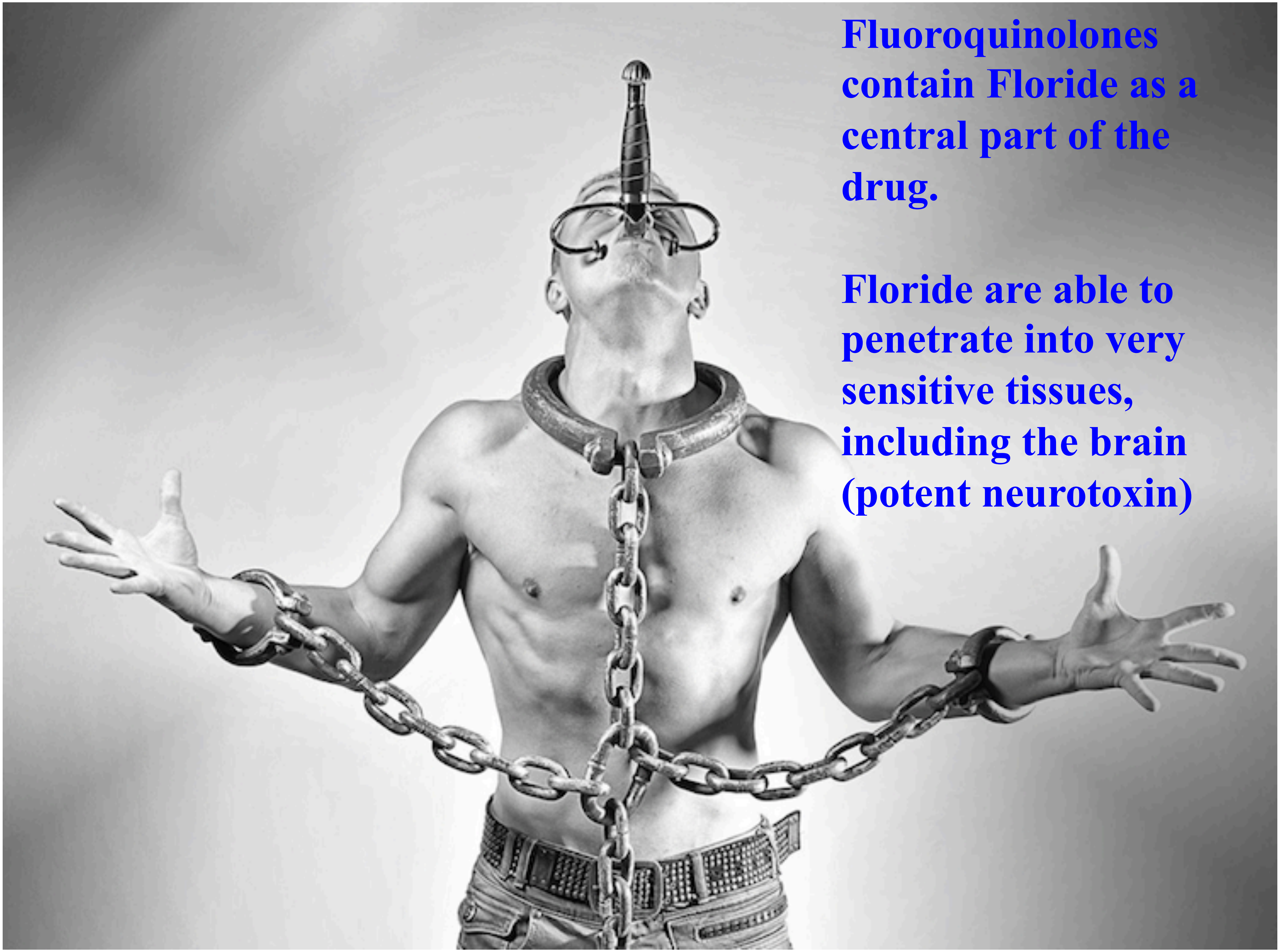
Treatment of ESBL UTI

- Oral
  - Fosfomycin 3g 1 single dose
  - Fosfomycin 3g q3 days for 3 doses
  - Nitrofurantoin 100mg bid for 7 days
- Injectable
  - Ertapenem IM
    - Can also be given intramuscularly
  - Meropenem IV

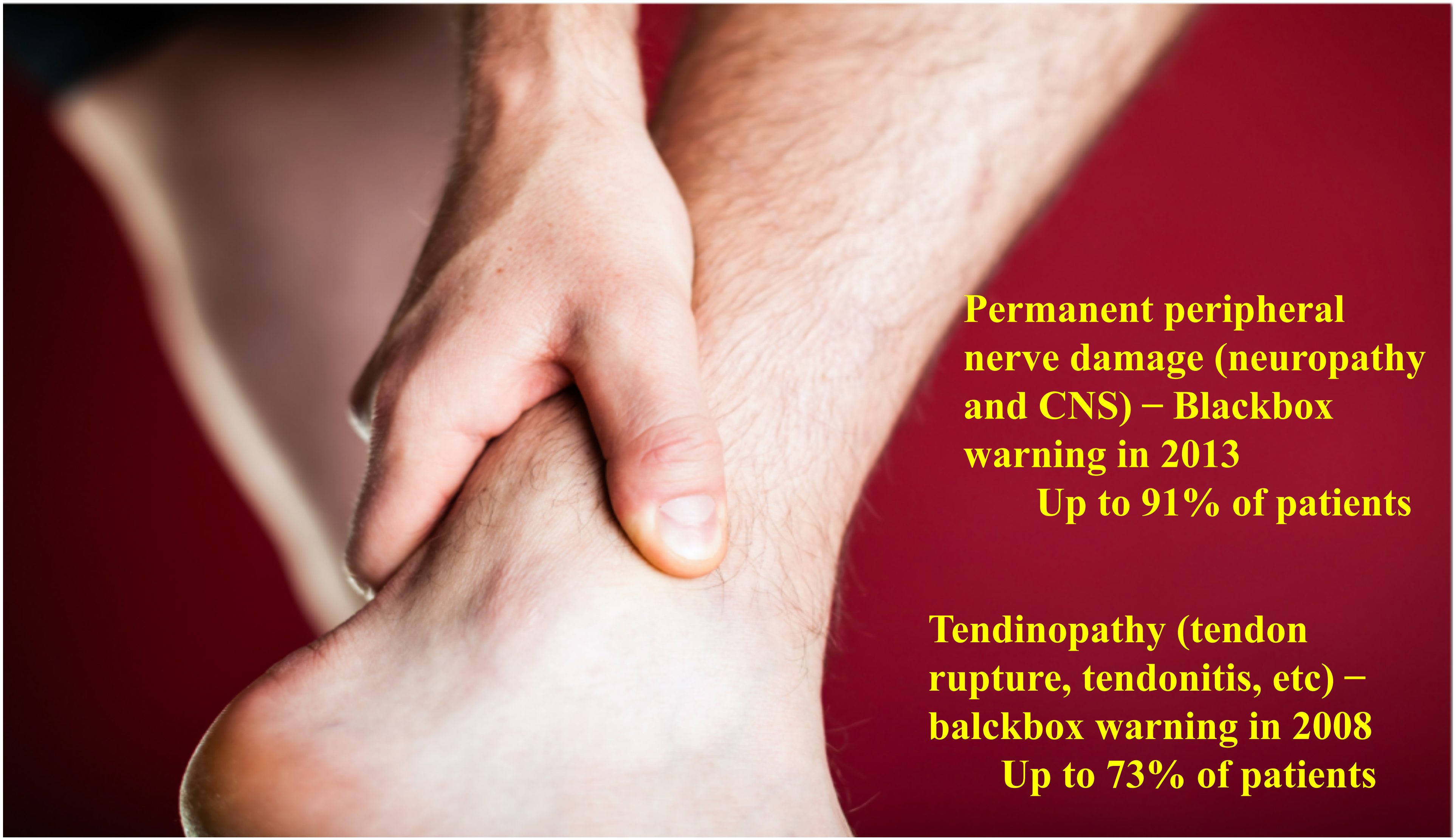
TMP-SMX CAN PRODUCE HYPERKALEMIA IN PATIENTS WITH DECREASED KIDNEY FUNCTION WHO ARE RECEIVING ACEI OR ARB

TMP-SMX WITH ORAL SULFONYLUREA WILL PRODUCE PROFOUND HYPOGLYCEMIA

FLUOROQUINOLONES WITH ORAL SULFONYLUREA WILL PRODUCE PROFOUND HYPOGLYCEMIA


Fluoroquinolones contain Floride as a central part of the drug.
Floride are able to penetrate into very sensitive tissues, including the brain (potent neurotoxin)

Flouroquinolones




1.Acute psychosis
2.Schizophrenia
3.Hallucinations
(Visual, auditory)
4.Fearfulness
1.Dizziness
2.Headaches
3.Confusion
4.Convulsions
5.Tremors
6.Neurologic disorders

IN MAY 2016, FDA RECOMMENDS AVOIDANCE OF FLUOROQUINOLONES FOR UNCOMPLICATED INFECTIONS

ACUTE EXACERBATION OF CHRONIC BRONCHITIS

URINARY TRACT INFECTIONS

ACUTE BACTERIAL SINUSITIS

Cipro, Levaquin & Avelox Lawsuits

Lawsuits over fluoroquinolone antibiotics Cipro, Levaquin and Avelox say patients suffered aortic dissection or aortic aneurysm that required overnight hospitalization or surgery, or resulted in death, within one year of taking the prescription drugs. Patients have also sued for nerve damage and tendon problems.

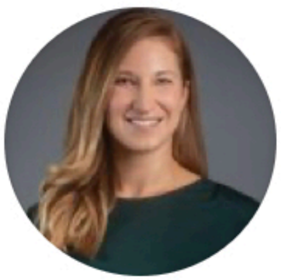
North Carolina Fluoroquinolone Lawsuits

We Can Help You

Public Service Announcement

9:05 LTE

Karim Jessa liked



Jocelyn J. Fitzgerald, MD @jfit... · 14h

Friendly PSA! Cipro is never 🙅‍♀️ the first line antibiotic for a UTI! 🧫 It has a black box warning and a lot of community resistance. Macrobid is your move 🤩

28 56 577

My go to options…

- Amoxicillin
- Cephalexine
- Nitrofurantoin
- Amoxicillin-clavulanate
- Fosfomycin
- Cefixime
- TMP-SMX
- Ertapenem IM

Case 3

- You are on-call and your Staff calls you…
  - 78yo female
  - Bilat leg redness and warm. New onset for 1 day
  - Increased in pain
  - No fever/n/v

- What antibiotic would you like to give doctor?

Swollen, red, painful legs

Symptoms

- Associated with the 4 cardinal signs of infection:
  - Erythema
  - Pain
  - Swelling
  - Warmth
- Findings suggestive severe infection:
  - Malaise, chills, fever, and toxicity
  - Lymphangitic spread
  - Circumferential cellulitis

Bacteriology

- In individuals with normal host defenses:
  - Group A streptococci (GAS)
  - *S aureus*
  - Group B *Streptococcus* (infants < 6 months)
  - Impetigo: *S aureus* and/or *S pyogenes*
  - Erysipelas: streptococcal species such as *S pyogenes*

Bacteriology

- Immunocompromised hosts
  - Gram-negative rods (eg, *Pseudomonas, Proteus, Serratia, Enterobacter, Citrobacter*)
  - Anaerobes

Cellulitis or not?

- More than 10% of pts are labeled as having cellulitis do not have cellulitis
- Many patients admitted for the treatment of cellulitis actually have stasis dermatitis and lipodermatosclerosis

Cleveland Clinic Journal of Medicine, Aug 2012, Vol 79(8): 547-552
Dermatol Online J. 2011 Mar 15. 17(3): 1

Cellulitis or not?

- Cellulitis are overwhelmingly unilateral, with smooth indistinct borders

Bilateral redness/warmth/pain =

Cleveland Clinic Journal of Medicine, Aug 2012, Vol 79(8): 547-552

Cellulitis or not?

- Symptoms and signs ***NOT*** suggestive of cellulitis
  - Bilateral or symmetrical
  - Lack of pain
  - Mainly pruritic
  - Long-standing course with acute flare
  - Progressive course
  - Non-response to appropriate antibiotic therapy

Cleveland Clinic Journal of Medicine, Aug 2012, Vol 79(8): 547-552

When rubber hits the road

- First line
  - Cephalexine 500mg QID for 7 days
  - Cloxacillin 500mg QID for 7 days
  - Amoxicillin-clavulanate 500mg bid for 7 days

- If severe B-Lactam allergies
  - Doxycycline 100mg BID for 7 days
  - Clindamycin 300mg QID for 7 days
  - TMP-SMX DS 1 tabs bid for 7 days

Purulent infections/MRSA

- First line
  - Incision and drainage
  - TMP-SMX DS 1 tab bid for 7 days
  - Doxycycline 100mg bid for 7 days
  - Levofloxacin 500mg once daily for 7 days
  - Doxycycline 100mg BID for 7 days
  - Linezolid

Impetigo

Uncomplicated

- Topical option
  - Mupirocin
  - Fusidic acid
  - Clindamycin
  - Hydrogen peroxide

Complicated

- Systemic option
  - Cloxacillin 500mg tid for 7 days
  - Amoxicillin-clavulanate 500mg bid for 7 days
  - Cephalexine 500mg qid for 7 days
  - Cefadroxil 1g once daily for 7 days
  - Clindamycin 300mg bid for 7 days

Erysipelas

- Pen V 600mg po tid for 5-7 days
- Cloxacillin 500mg tid for 5-7 days
- Cephalexine 500mg qid for 5-7 days
- Cefadroxil 1g once daily for 5-7 days
- Clindamycin 300mg tid for 5-7 days
- Azithromycin 500mg x 1 day and 250mg for 4 days

Diabetic foot

- Not infected
  - Do ***NOT*** treat – not all foot ulcers are infected in the absence of purulence)
- Diabetic foot
  - Mild-Moderate: Cephalexine 500mg QID for 5-14 days
  - Severe: transfer to hospital as most will need IV therapy
    - If chose oral regimen: Ceftriaxone 1g IM once daily + Metronidazole 500mg TID for 14 days

Allow time

- It is reasonable to anticipate that pts on appropriate therapy may not show signs of clinical improvement for up to 72h.
- Patient s who do not respond after 3 full days of therapy should be reassessed on day 4.

Does my pt need IV antibiotics?

- Antibiotic regimens are effective in more than ***90%*** of patients
- Who may require inpatient IV antibiotic?
  - Not responding the appropriate oral regimen
  - Immunosuppressed patients
  - Patients with facial cellulitis
  - Pts with significant concurrent condition, including lymphedema, cardiac, hepatic, or renal failure

Case 4

You are on-call and the Staff calls you…

- 85yo male
- HTN, DMII, Gout, Alzheimer, stroke with left residual mild hemiparesis
- Donepezil, Coversyl 8mg, HCTZ 25mg, Adalat XL 80mg, Metformin, Glargine 300 insulin, Allopurinol, etc

Case 4

- Vital signs
  - Pulse 68
  - RR 18
  - O2sat 96% RA
  - Temp 36.7 tympanic
  - BP 189/94

- I am waiting for your direction? What would you like to do?

Definition

- Hypertensive Emergency (HE)
  - Sudden elevation in systolic BP and/or Diastolic BP that is associated with acute end-organ damage
    - Cardiovascular
    - Cerebrovascular
    - Renal
- Hypertensive urgency (HU)
  - Sudden elevation in systolic BP and/or Diastolic BP that is *NOT* associated with acute end-organ damage

Seminars in Dialysis vol 19, No 6, 2006: 502-512

Crucial distinction

HU

- Gradual normalization
  - Outpatient setting
  - BP control within *24-48 hours to several days*
  - Reduction in BP of no more than 25% in the first 24h

HE

- Expeditious control of the hypertension with parenteral medications

Emergencias 2010; 22: 209-219
Hospital Physician. 2007; 43: 43-50

Hypertensive Emergencies

TABLE 1. Hypertensive emergencies

Hypertensive encephalopathy
Acute aortic dissection
Acute myocardial infarction
Acute coronary syndrome
Pulmonary edema with respiratory failure
Severe pre-eclampsia, HELLP syndrome, eclampsia
Acute renal failure
Microangiopathic hemolytic anemia

HELLP, Hemolysis, elevated liver enzymes, low platelets.

Seminars in Dialysis vol 19, No 6, 2006: 502-512

Initial Dx evaluation

- It is not necessary to perform any additional tests in this type of patients if they show no symptoms suggestive of end-organ damage

Ann Emerg Med. 2006; 47: 237-249

Management principles

- Rapid reduction of BP may be associated with significant morbidity because of rightward shift in the pressure/flow auto-regulatory curve in critical arterial beds
  - Cerebral
  - Cardiac
  - Renal

BMJ 1980, 281:1120-1122
Am J Med 1987, 82: 29-36
Am Heart J 1986, 111: 226-228

Management principles

- Rapid correction of severely elevated BP can result in marked reduction in perfusion pressures and produce
  - Ischemia
  - Infarction
- Blood pressures should not be lowered to normal levels

Postgrad Med 93: 92-96, 1990
Br Med J 281: 1120-1122, 1980
Am J Med 82: 29-36, 1987
Am Heart J 111: 226-228, 1986

Management Principles

- **Only patients with Hypertensive emergencies require immediate reduction in BP.**
- **In all other patients the elevated BP can be lowered slowly using oral agents**

How quickly do they need treatment?

- 1967 Veterans Affairs Cooperative Trial
  - Benefits demonstrated over months-years, not hours
  - The time to the first adverse event in the placebo arm was 2 months

JAMA. 1967; 202(11): 1028-1034

Hospitalization

- Total of 426 patients were referred to the hospital
  - 100 were admitted
    - At 7 days:
      - Primary outcomes (composite MI, stroke, TIA) were reached
        - » 0.1% in the discharged home pts
        - » 0.5% in the hospital pts
  - In those with SBP > 220
    - At 7 days:
      - Primary outcomes were reached
        - » 0.2% in the discharged home pts
        - » 0% in the hospital pts

What should we do?

- ACC/AHA 2017
  - “There is no indication for referral to the ED, immediate reduction in BP in the ED, or hospitalization for pts with hypertensive urgency”

My strategy

- Reassure the staff
- Reassure the resident
- Reassure the SDM
- Oral medication
- Lorazepam
- Reassess
- Add/switch medication at next round

Summary

- Do not treat Asx Bacteuria
- Avoid Fluoroquinolones in uncomplicated diseases and if no B-lactam allergies
- Treat cellulitis only if you can diagnose it appropriately (remember the mimics)
- Oral antibiotics for cellulitis works really well. Seldom there is a need for IV therapy
- There is no need to transfer residents to the ER (especially in the evening and night) for hypertensive urgency

Summary

- Manage staff's expectations
- Manage SDM's expectations
- Educate staff
- Educate SDM

VKTTRAN@ROGERS.COM