

## ANSWER SHEET

### Urinary Tract Infections Rhodes College Clinic April 2002 - J. Lewis, M.D.

1. What are the two most common organisms causing uncomplicated cystitis in the female patient?
  - a. **E. coli**
  - b. Klebsiella
  - c. Group D strep
  - d. **Staph saprophyticus**
  - e. Enterobacter

**Comment: Staph saprophyticus is a distant second. (5-20% of UTI's) In older women, this organism may require 7 days of therapy for eradication.**

2. A 20 y.o. sexually active female Rhodes student c/o dysuria and frequency of 24 hours duration. Dipstick revealed 1+ pyuria, and a three-day treatment with Septra DS was prescribed. However, a urine C&S obtained because of a history of recurrent UTIs now reveals E. coli with a colony count of only  $10^3$  sensitive to Septra. What should now be done?
  - a. Stop treatment since a UTI is not present
  - b. Switch therapy to outpt. IV
  - c. Continue the planned 3-day treatment
  - d. **Increase time of therapy to 7 days**
  - e. Treat for 6 weeks
  - f. **Obtain F/U urine C&S in 2 weeks**

**Comment: With a history of recurrent UTIs, treatment for 7 days should be given. A F/U urine C&S is important to obtain because of the recurrent UTI hx. A relapse with the same organism (as opposed to a reinfection) requires treatment for 2 weeks. Remember that an UTI is diagnosed as  $\geq 10^2$  organisms in the setting of dysuria and pyuria.**

3. A 19 y.o. female Rhodes student who is sexually active has her fourth documented UTI over the past 12 months. She denies any history of diabetes, immunosuppression, nephrolithiasis, sickle cell disease, or UTIs as a child. What are proper management options?
  - a. Abdominal US and cystoscopy
  - b. IVP and cystoscopy
  - c. **Provide prescriptions with refills for short course ATB therapy (i.e., 3 days)**
  - d. **Daily antibiotic therapy for 6 months**
  - e. **Single dose ATB therapy to be taken with intercourse.**

**Comment: Recurrent UTIs are defined as  $\geq 3$  UTIs/year. In the absence of factors complicating UTIs (noted in the question; also renal insufficiency, recent ATB use, recent GU instrumentation), it is reasonable to provide either c, d, or e. Sexual intercourse predisposes to UTIs. Daily antibiotic therapy consists of NTF - 50 mg hs, Septra SS - 1/2 tablet hs, or Keflex - 250 mg hs.**

4. A 22 y.o. Rhodes student develops fever to  $102^{\circ}$ , chills, and flank unilateral pain but without N&V. BP is 110/70 and HR 100. Dipstick UA reveals  $\oplus$  leukocyte esterase and  $\oplus$  nitrite. Proper management should include:
- Microscopic UA and gram stain**
  - Urine C&S**
  - P.O. ATBs x 3 days
  - P.O. ATBs x 14 days**
  - IV ATBs until afebrile; then P.O., ATBs to complete a 14 day course
  - Blood cultures x2
  - Pelvic examination

**Comment: This is classic pyelonephritis. Uncomplicated pyelo in a patient without N&V or hemodynamic instability may be managed as an outpatient. Blood cultures are not needed unless the patient is seriously ill or hospitalized. A micro-scope UA helps confirm the diagnosis, and the gram stain guides ATB choice. ( $\geq 7$  WBCs/HPF in unspun urine or  $\geq 25$  WBLs/HPF in spun urine = pyuria; IDSA recommends 14 days of therapy with a fluoroquinolone as first choice if gm  $\square$ . If gm  $\oplus$ , use Amoxil or Augmentin.  $\geq 10$  WBCs/HPF in spun urine = pyuria. WBC casts suggests pyelo.) The Nitrite test is specific, but not sensitive. Enterococcus and staph have  $\square$  nitrite tests. Vitamin C causes false  $\square$ 's. If hospitalization needed, use parenteral FQ, AG  $\neq$  Amp, or 3rd GenCeph  $\neq$  AG if gm  $\square$ . If gm  $\oplus$ , use Unasyn  $\neq$  AG. Unilateral CVA pain, fever, pyuria, and no vaginal symptoms will not require a pelvic. However, a pelvic may be indicated for other reasons. Generally if pyelo. is not classic in presentation, a pelvic should be done to rule out PID.**

5. Treatment for asymptomatic bacteruria should always occur in which of the following conditions?
- Pregnancy**
  - Diabetes mellitus**
  - Indwelling Foley catheter
  - Patients  $\geq$  age 65
  - Previous nephrolithiasis by history

**Comment: All authorities agree that asymptomatic bacteruria must be treated in pregnancy because of progression to cystitis or pyelonephritis in 40% of cases. The remaining conditions are complicating features of UTIs but do not mandate rx. of asx. bacteruria.**

6. Acceptable short course (3 day) ATB use for management of uncomplicated cystitis includes all of the following drugs. Which is considered the most effective and cost effective?
- Amoxicillin
  - Septra DS**
  - Quinolone
  - Nitrofurantoin
  - Tetracycline
  - Cefadroxil

**Comment: Septra DS is the most efficacious, cost-effective treatment among the many choices available. Some individual communities may have a high rate of resistance (>10-20%) and FQ may be initial drug of choice there.**

7. Post-treatment cultures should always be obtained 2 weeks after an episode of pyelonephritis. **True** or **False**

**Comment: Failure to eradicate infection may require extending therapy to a total of 6 weeks. Up-to-date, however, argues against a routine post-treatment culture. If sx. recur within 2 wks. and urine C&S and sensitivities reveal the same organism, then US or CT is indicated and rx. with a different agent in 2 wks. is recommended.**

8. It is not necessary to obtain a urine C&S with a recurrent episode of cystitis. **True** or **False**

**Comment: Recurrences may occasionally reflect resistant organisms or upper tract infections.**

9. Acute cystitis complicated by DM, sx.  $\geq$  1 week, recent UTI, or age >65 requires 7 days of rx. **True** or **False**

**Comment: Pregnant women with cystitis should also receive a full week of ATB rx.**

10. Persistence of fever and flank pain in a pyelonephritis case beyond 3 days despite therapy is an indication for CT or US imaging. **True** or **False**

11. All patients with an acute episode of pyelonephritis should have an ultrasound & cystoscopy following treatment. True or **False**

**Comment: Only recurrence episodes of pyelo require structural evaluation of the GU system. Up-to-date suggests evaluation only after 3 episodes. Other indications for W/U include men  $\geq$  age 50 with UTI and childhood UTIs. VCUs (along with US) are debatably the procedures of choice in children. VCU may be done radiologically with  $\uparrow$  radiation exposure but with slightly better definition of anatomy; a VCU may also be obtained through radionuclide scanning.**

12. Relapses of cystitis should receive ATB rx. for 2 weeks. **True** or False
13. For each patient described below, select the most appropriate management (a-d).
- No treatment is indicated unless the patient develops fever or other signs consistent with urosepsis.
  - After obtaining a culture of the urine, initiate oral treatment with trimethoprim-sulfamethoxazole, norfloxacin, or ciprofloxacin. Modify treatment as dictated by urine culture results and course. Treat for 7 days.
  - Treat for 3 days with trimethoprim-sulfamethoxazole. Obtain urine culture only if no symptomatic response or relapse occurs.
  - Hospitalize the patient and initiate therapy with parenteral ceftriaxone, gentamicin, or ciprofloxacin after obtaining cultures of the urine and blood.

- c   1) An 18 y.o. woman presents with urinary frequency, dysuria, and low-grade fever. Urinalysis shows pyuria and bacilli. She has never had similar symptoms or treatment for urinary tract infection.
- b   2) An 18 y.o. woman presents with her third episode of urinary frequency, dysuria, and pyuria in the past 4 months.
- b   3) A 58 y.o. man presents with his first episode of urinary frequency and dysuria. Urinalysis shows pyuria and bacilli.
- d   4) A 24 y.o. woman presents with fever, chills, nausea, vomiting, flank pain, and tenderness. Her temperature is 40°C (104°F); pulse rate is 120/min, and blood pressure is 100/60 mm Hg. Urine gram stain shows gram  $\square$  bacilli.
- a   5) A 78 y.o. woman presents with an indwelling Foley catheter and pyuria.

**Comment: Do not treat pyelo. with Ampicillin or Septra alone.**

14. A 19 y.o. uncircumcised male Rhodes student comes c/o dysuria and urgency. UA reveals pyuria and C&S reveals  $>10^5$  E. coli. Management should include:
- Treatment for 3 days
  - Treatment for 7 days**
  - Treatment for 2-6 weeks
  - Urologic evaluation (US & Cysto.)
  - Referral for circumcision

**Comment: UTIs in men < age 50 may present with symptoms of cystitis or urethritis. Risk factors include homosexuality, lack of circumcision, or sexual partner with vaginal colonization. Uncomplicated cases should be treated for 7 days after obtaining culture.**

**Lipsky notes that a urine culture with  $\geq 10^3$  CFU/ml represents a UTI in a dysuric male. Protens and Providentia species are the second most common pathogens in males.**

15. An 18 y.o. Rhodes student comes c/o dysuria of gradual onset over the last week. She just became sexually active about 2 weeks ago. Urine dipstick reveals pyuria. How should this patient be managed?
- a) **A pelvic examination should be performed.**
  - b) **Her new boyfriend should be referred for evaluation.**
  - c) A three-day course of Septra is indicated.
  - d) **A urine culture is indicated.**
  - e) **A one-week course of a quinolone or doxycycline may be indicated.**

**Comment: This is a classic presentation for chlamydial urethritis, which can be confused with a bacterial UTI. Gross hematuria, suprapubic pain, abrupt onset, and duration <3 days favor bacterial UTI. Gradual onset, no hematuria, no suprapubic pain, and >7 days of symptoms favor chlamydial urethritis. A urine C&S and pelvic examination will help distinguish between the two. Urine C&S with  $\geq 10^2$  organisms favors UTI.**

**References:**

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