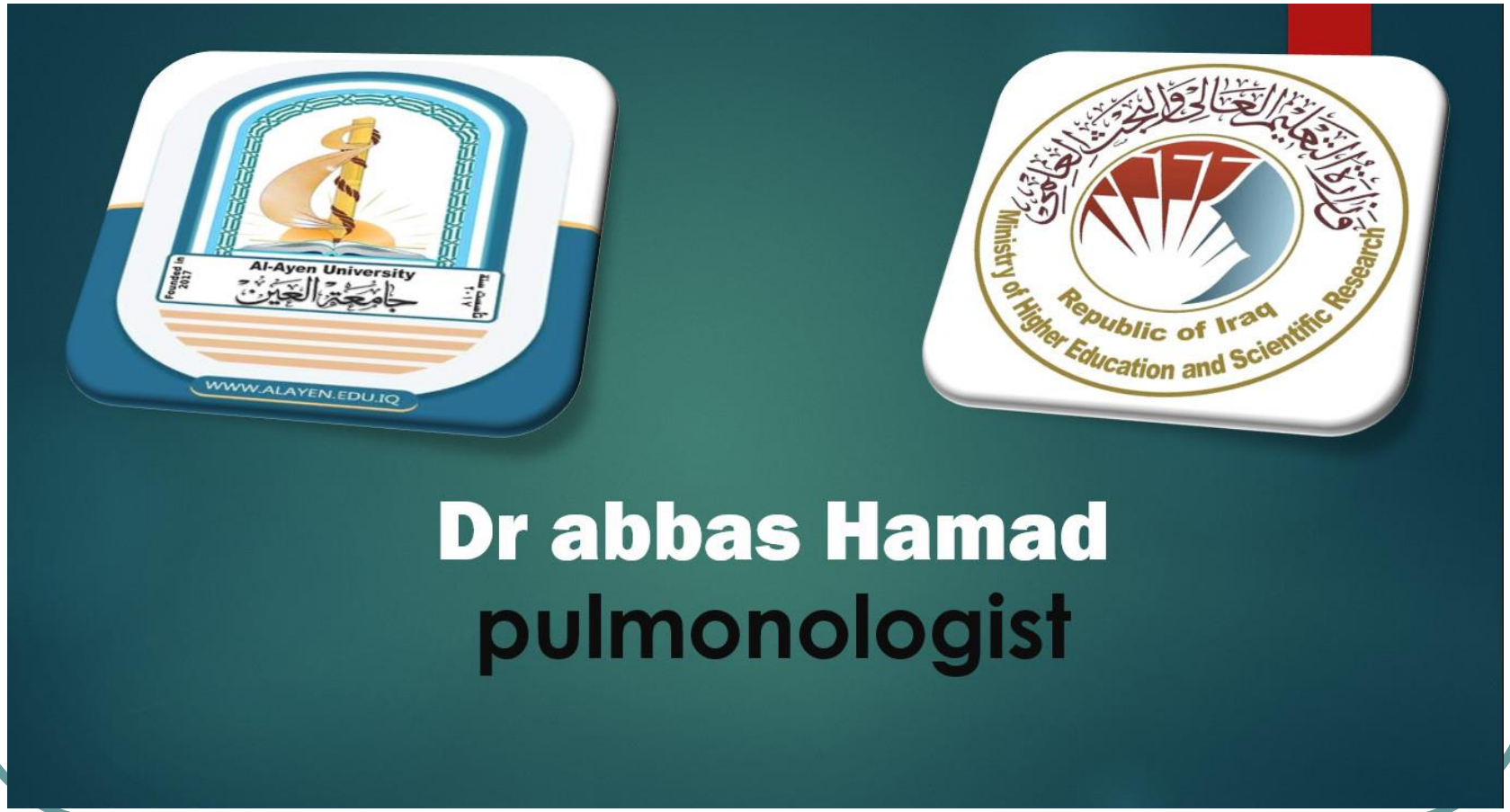
MEDICINE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Urinary Tract Infection

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1/3/2022

المحاضرة 14– المرحلة الثانية

Urinary Tract Infection

- Upper urinary tract Infections:
  - **Pyelonephritis**
- Lower urinary tract infections
  - **Cystitis** (“traditional” UTI)
  - **Urethritis** (often sexually-transmitted)
  - **Prostatitis**

Symptoms of Urinary Tract Infection

- Dysuria
- Increased frequency
- Hematuria
- Fever
- Nausea/Vomiting (pyelonephritis)
- Flank pain (pyelonephritis)

Findings on Exam in UTI

- Physical Exam:
  - CVA tenderness (**pyelonephritis**)
  - Urethral discharge (**urethritis**)
  - Tender prostate on DRE (**prostatitis**)
- Labs: Urinalysis
  - + leukocyte esterase
  - + nitrites
    - More likely gram-negative rods
  - + WBCs
  - + RBCs

Culture in UTI

- Positive Urine Culture = >10^5 CFU/mL
- Most common pathogen for **cystitis**, **prostatitis**, **pyelonephritis**:
  - *Escherichia coli*
  - *Staphylococcus saprophyticus*
  - *Proteus mirabilis*
  - *Klebsiella*
  - *Enterococcus*
- Most common pathogen for urethritis
  - *Chlamydia trachomatis*
  - *Neisseria Gonorrhea*

Lower Urinary Tract Infection - Cystitis

- Uncomplicated (Simple) cystitis
  - In healthy woman, with no signs of systemic disease
- Complicated cystitis
  - In men, or woman with comorbid medical problems.
- Recurrent cystitis

Uncomplicated (simple) Cystitis

- Definition
  - Healthy adult woman (over age 12)
  - Non-pregnant
  - No fever, nausea, vomiting, flank pain
- Diagnosis
  - Dipstick urinalysis (no culture or lab tests needed)
- Treatment
  - Trimethroprim/Sulfamethoxazole for **3 days**
  - May use fluoroquinolone (ciprofoxacin or levofloxacin) in patient with sulfa allergy, areas with high rates of bactrim-resistance
- Risk factors:
  - Sexual intercourse
    - May recommend post-coital voiding or prophylactic antibiotic use.

Complicated **Cystitis**

- Definition
  - Females with comorbid medical conditions
  - All male patients
  - Indwelling foley catheters
  - Urosepsis/hospitalization
- Diagnosis
  - Urinalysis, Urine culture
  - Further labs, if appropriate.
- Treatment
  - Fluoroquinolone (or other broad spectrum antibiotic)
  - **7-14 days** of treatment (depending on severity)
  - May treat even longer (2-4 weeks) in males with UTI

Recurrent Cystitis

- Want to make sure urine culture and sensitivity obtained.
- May consider urologic work-up to evaluate for anatomical abnormality.
- Treat for 7-14 days.

Pyelonephritis

- Infection of the kidney
- Associated with constitutional symptoms – fever, nausea, vomiting, headache
- Diagnosis:
  - Urinalysis, urine culture, CBC, Chemistry
- Treatment:
  - **2-weeks** of Trimethroprim/sulfamethoxazole or fluoroquinolone
  - Hospitalization and IV antibiotics if patient unable to take po.
- Complications:
  - Perinephric/Renal abscess:
    - Suspect in patient who is not improving on antibiotic therapy.
    - Diagnosis: CT with contrast, renal ultrasound
    - May need surgical drainage.
  - Nephrolithiasis with UTI
    - Suspect in patient with severe flank pain
    - Need urology consult for treatment of kidney stone

Prostatitis

- Symptoms:
  - Pain in the perineum, lower abdomen, testicles, penis, and with ejaculation, bladder irritation, bladder outlet obstruction, and sometimes blood in the semen
- Diagnosis:
  - Typical clinical history (fevers, chills, dysuria, malaise, myalgias, pelvic/perineal pain, cloudy urine)
  - The finding of an edematous and tender prostate on physical examination
  - Will have an increased PSA
  - Urinalysis, urine culture
- Treatment:
  - Trimethoprim/sulfamethoxazole, fluroquinolone or other broad spectrum antibiotic
  - **4-6 weeks of treatment**
- Risk Factors:
  - Trauma
  - Sexual abstinence
  - Dehydration

Urethritis

- *Chlamydia trachomatis*
  - Frequently asymptomatic in females, but can present with dysuria, discharge or pelvic inflammatory disease.
  - Send UA, Urine culture (if pyuria seen, but no bacteria, suspect Chlamydia)
  - Pelvic exam – send discharge from cervical or urethral os for chlamydia PCR
  - Chlamydia screening is now recommended for all females ≤ 25 years
  - Treatment:
    - Azithromycin – 1 g po x 1
    - Doxycycline – 100 mg po BID x 7 days
- *Neisseria gonorrhoeae*
  - May present with dysuria, discharge, PID
  - Send UA, urine culture
  - Pelvic exam – send discharge samples for gram stain, culture, PCR
  - Treatment:
    - Ceftriaxone – 125 mg IM x 1
    - Cipro – 500 mg po x 1
    - Levofloxacin – 250 mg po x 1
    - Ofloxacin – 400 mg po x 1
    - Spectinomycin – 2 g IM x 1
  - ***You should always also treat for chlamydia when treating for gonnorhea!***

Question #1

- An 18-year old 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.

Question # 1

- What category of UTI does this patient have?
- Does this patient require further testing?
- Would you treat this patient, and if so, with what and how long?

Question # 2

- An 18-year old woman present with her third episode of urinary frequency, dysuria, and pyuria in the past 4 months.

Question # 2

- What further questions do you have for this patient?
- What type of UTI does this patient have?
- What testing might you perform in this patient?
- How would you treat her, and for how long?

Question #3

- A 24-year old woman presents with fever, chills, nausea, vomiting, flank pain and tenderness. Her temperature is 40°C, pulse rate is 120/min., and blood pressure is 100/60 mm Hg.

Question # 3

- What further studies do you want in this patient?
- How would you treat this patient?
- What might you do if she does not improve after 3-4 days?

- THANKS