Complicated Urinary Tract Infection/Pyelonephritis

Clinical Diagnosis: Fever, pyuria, and costovertebral angle tenderness suggest pyelonephritis. If any of the following are present, it is also considered a complicated urinary tract infection:

1. Renal calculi or other obstructive disease
2. Immunosuppressed host
3. Male sex
4. Abnormal urological anatomy or physiology, or presence of a urinary catheter

Initial work-up/assessment:

1. Urinalysis with reflex urine culture
2. Blood and urine cultures prior to antibiotics
3. If there is no pyuria, consider an alternative diagnosis, or proximal ureteral obstruction
    - *Note: pyuria is common in the presence of a urinary catheter, and may not indicate infection*

Empiric therapy:

Inpatient:

First-line therapy options:

1. IV ceftriaxone 2g daily
2. IV cefepime 2g q8h
3. IV meropenem 1g q8h, if history of or confirmed ESBL

Alternatives:

1. May use IV ertapenem 1g Q24h in place of meropenem if no *Pseudomonas*
2. PO ciprofloxacin 750mg BID OR IV 400mg BID (if sensitivity confirmed. Fluoroquinolones can be converted to oral therapy due to excellent bioavailability, and dose reduced to 500mg PO BID if there is no bacteremia)

Duration: 7-14 days

Outpatient:

First-line therapy:

1. PO ciprofloxacin 750mg BID, or 500mg PO BID if no bacteremia

Duration: 7-14 days, shorter duration if prompt improvement

Note: Tailor therapy once/if culture results are available. If no improvement within 48 hours, consider imaging to rule out complications such as perinephric abscess. Rule out urological abnormalities if this occurs in a male