UTI case study

- A 29 year old female patient complains about “bladder infection”. She describes her symptoms as frequent micturition, suprapubic pain and a constant urge to void. She tells you that her urine is “smelly” and has a faint red tinge to it.

- Clinical findings
  - BP = 130/85 mmHg
  - Temp = 38.5°C
  - Lower abdominal tenderness on palpitation + tenderness over the kidneys
  - Urinary dipstick reveals
    - 2+ leukocytes
    - 2+ blood
    - Positive nitrogen

- Diagnosis = UTI

Would you send a urine sample to the lab to be cultured? Motivate your answer.

- No
- Symptoms indicate acute uncomplicated cystitis, probably community acquired
- Positive leukocyte esterase test indicates infection
- Positive nitrite test indicates G(-) bacterial infection
- Treat patient empirically, which can start immediately, no need to wait for culture results
- Only send samples for culture when cystitis diagnosis is questioned

What are the most likely pathogens?

- Likely to be *E. coli* infection, which is the most common with community acquired infection
- Can only be confirmed with urine culture

How would you treat this patient and for how long?

- Ciprofloxacin 500 mg twice a day for 3 days
  - Standard treatment regime
  - May also use single dose therapy but resistance is more likely to occur than with 3 day treament
- Can also use nitrofurantoin 100 mg 3-4×/day for 7 days
  - *E. coli* is not resistant
  - Slows the development of resistance against Ciprofloxacin
- 1st option better for compliance reasons
- 2nd option better for general antibiotic drug resistance

Would you recommend using a urinary alkaliniser? Motivate.

- No
- Alkalinisation is not suitable when certain antimicrobials are used
- Both ciprofloxacin and nitrofurantoin have increased efficacy at pH 5.5 and below (acidic conditions)

If this patient was diabetic and have been symptomatic for more than a week, how would you treat?

- Ciprofloxacin 500 mg twice daily for 7 days

If this patient was pregnant, how would you treat?

- Co-amoxiclav (amoxicillin + clavulanic acid)
  - 375 mg 3× a day for 7 days

If this patient was also allergic to penicillin?

- May try cephalosporins, unlikely to get hypersensitivity reaction
- May also try co-trimoxazole, widely used BUT Steven Johnson Syndrome

- Nitrofurantoin
  - 100 mg 3-4× a day for 7 days

If this is the 4th UTI the patient has had in the last year, what would you recommend?

- Inform the patient on how to avoid UTIs
- Eradicate organism and start prophylaxis
- Prophylaxis
  - Nitrofurantoin 100 mg @ night (6 months maximum)
    - Pulmonary fibrosis
  - Co-trimoxazole 80/400 mg @ night
- Patient self treatment
  - Ciprofloxacin 500 mg single dose
- Treat sexual partner if that is probable cause

If the patient recently changed sexual partners and also has a vaginal discharge what could be the cause of the UTI?

- If genital lesion / vaginal discharge and < 10^5 bacteria/ml urine
  - Urethritis/Vaginitis/Cervicitis
  - *C. trachomatis, N. gonorrhoea, Trichomonas, Candida*, herpes simplex virus
- Vaginal discharge → *C. trachomatis, N. gonorrhoea, Trichomonas, Candida*
- *C. trachomatis* → doxycycline 100 mg twice daily for 7 days
  - Macrolides such as erythromycin / azithromycin
- *N. gonorrhoea* → Ciprofloxacin 500 mg single dose
- *Candida* → Fluconazole