Pyelonephritis

Risk factors:
- Sexual intercourse
- Multiple partners
- Pregnancy
- Menopause
- Immunosuppression
- Structural abnormalities of the urinary tract (e.g., Vesicoureteral reflux, Ureteric obstruction due to renal calculi)
- Catheterisation
- Ureteric stents
- Neurogenic bladder
- Prostate disease
- Comorbidities (e.g., diabetes mellitus)

NB. In pregnancy cystitis is usually asymptomatic till it becomes pyelonephritis!

Clinical features:
- Fever
- Rigors
- Loin pain &/or suprapubic pain
- Haematuria
- Pyuria
- Oliguria (if renal failure)

Investigations:
- Urine dipstick
- MSU Urinalysis
- Bloods (FBC, U&E, LFT, CRP)
- USS
- IVU cystoscopy

In patients with recurrent ascending urinary tract infections, it may be necessary to exclude an anatomical abnormality, such as Vesicoureteral reflux or Polycystic kidney disease

Management:
- Abx are the mainstay of treatment.
- Mild cases may be treated with oral therapy, but generally IV Abx are required for the initial stages of treatment:
  - Fluoroquinolones (e.g., ciprofloxacin)
  - Penicillins (e.g., Tazocin or amoxicillin)
  - Trimethoprim
- Aminoglycosides usually avoided due to their toxicity
- All acute cases with spiking fevers and leucocytosis should be admitted to the hospital for IV fluids rehydration.
- Intravenous fluids may be administered to compensate for the reduced oral intake, insensible losses (due to the raised temperature) and vasodilatation to maximize urine output.

Prognosis:
- Pyelonephritis usually responds well to Abx therapy.

Prevention:
- Increase fluid intake to at least 8 glasses each day to maintain bladder hygiene
- Improve voiding habits by always responding to initial urge to void
- Void after intercourse to rid urethra of bacteria acquired during sex, and if a history of atypical anatomy or recurrent UTIs
- Seek medical attention as soon as symptoms of a UTI present

Definition:
- Pyelonephritis is an ascending Urinary Tract Infection that has travelled up the ureter into the renal pelvis.

Epidemiology:
- 120-130/100 000 in women
- 30-40/100 000 in men
- More frequent in younger women (greater sexual activity)

Common organisms:
- E. coli (70-80%)
- Staphylococcus saprophyticus
- Proteus mirabilis
- Enterococcus faecalis

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