Infectious disease principles

Acute community-acquired infections

- Delayed antibiotics are a great way to reduce antibiotic use
- Dosing is typically determined by how “sick” the patient is
- Typical duration of antibiotics
  - Soft tissue infections, respiratory tract infections, upper urinary tract infections – 5-10 days
  - Lower urinary tract infections – single dose to 3 days
- Treat the “pain” as well – ibuprofen or acetaminophen

Otitis media

- A 3-year-old girl is brought to your office by her mother because she has a fever and complains that her ear hurts.
- She has no significant medical history.
- The child is unhappy and has been crying and has just not been herself for the last 24 hours.
- The child developed a “cold” about 3 days ago with sniffles.
- Her temperature is 38.5°C, and the rest of the physical examination is completed with some difficulty.
- The only abnormalities are slight redness of the throat, a nose full of thick green mucus, and somewhat bulging tympanic membranes.
- Assume this child has acute otitis media.

PICO

- Patient - In a child with otitis media
- Intervention - Antibiotics
- Comparator - No antibiotics
- Outcome - Resolution of symptoms, reduce complications

Tools For Practice

- Children with Acute Otitis Media: Benefits and Risks of Antibiotics

- Bottom-line: Although most children will recover from Acute Otitis Media without complications, antibiotics will improve outcomes for 1 in 3 to 1 in 10, depending on outcome and complicating factors. They will cause adverse events, particularly diarrhea, in up to 1 in every 5

Goals

- Relieve symptoms
- Sterilize the middle ear
- Prevent complications
- Avoid inappropriate therapy with antibiotics – side effects etc

Options

- Watchful waiting/delayed antibiotics – most get better on their own, less use of antibiotics
- Amoxicillin – drug of choice, well tolerated
- Amoxicillin/clavulanate – slightly broader spectrum, more diarrhea
- Cefuroxime – effective, more expensive
- Clarithromycin – effective, good if allergic to penicillin/ cephalosporins

Choice

- Amoxicillin – 40 mg/kg/day divided 2-3 times daily OR high dose 80 mg/kg/day divided 2-3 times daily – 10 days

- Stop once better for 3 days

Monitor

- Resolution of symptoms – reduced pain, fever, increased activity, less crying and pulling at the ear
- Toxicity – diarrhea, skin rash, more severe allergic reactions, nausea, vomiting

Other treatments

- Treat the pain and discomfort – warm compresses, ibuprofen, acetaminophen, videos

- Probiotics - TFP - Probiotics reduce the incidence of CDAD in patients on antibiotics with a NNT of 26. However, the ideal product, length of therapy, and safety of probiotics (particularly in the immunocompromised) is unknown.

Bladder infection

- A 25-year old female student with no history of previous urinary tract infections comes into your office with complaints of dysuria, frequency, and lower abdominal discomfort. Assume that the patient has a bladder infection.

Goals

- Relieve symptoms
- Prevent complications
- Prevent recurrent infections
- Prevent severe complications
- Prevent pyelonephritis

Options

- Watchful waiting/delayed prescriptions
- Trimethoprim/sulfamethoxazole - DOC, effective, inexpensive, good if pen allergic, skin rash
- Nitrofurantoin - effective, inexpensive, GI side effects
- Ciprofloxacin - effective, more expensive, good if pen allergic
- Cephalexin - effective, inexpensive

Choice

- TMP/SMX - 1 DS tablet twice daily for three days

Monitor

- Resolution of symptoms – reduced pain, frequency, worsening of symptoms suggesting a systemic infection
- Toxicity – diarrhea, skin rash, more severe allergic reactions, nausea, vomiting

Other treatments

- Treat the pain and discomfort – ibuprofen, acetaminophen, probiotics

Pyelonephritis

- A 30-year-old patient presents with complaints of dysuria, increased temperature, and costovertebral angle tenderness. These symptoms have been getting worse over the last 24-36 hours. Assume the person has pyelonephritis.

Goals

- Relieve symptoms
- Prevent complications
- Prevent recurrent infections
- Prevent severe complications

Options

- Quinolone – ciprofloxacin/levofloxacin - DOC?
- TMP/SMX - effective, inexpensive
- Trimethoprim - effective, no sulpha allergy
- Amoxicillin/clavulanate - effective, diarrhea, can't use if pen allergic

Choice

- Ciprofloxacin 500mg twice daily for 10 days
- stop once no symptoms for 3 days

Monitor

- Resolution of symptoms – reduced pain, frequency, fever
- Toxicity – diarrhea, skin rash, more severe allergic reactions, nausea, vomiting

Other treatments

- Treat the pain and discomfort – ibuprofen, acetaminophen, probiotics