MENINGITIS PEARLS


Take home points:
1. The utility of the physical exam in detecting meningitis is not great. Given the gravity of the illness, if you suspect meningitis, strongly consider lumbar puncture to definitely rule it out.
2. All patients don’t need a head CT before lumbar puncture.
3. The best evidence for dexamethasone is in patients with pneumococcal meningitis.
4. **Never delay antibiotics:** remember to use 2g CFTX IV (for CSF penetration) and add vancomycin if you are in an area with resistant pneumococcus. Vanco dose: 15 mg/kg IV q6h, max 2-3 g/day.

When a patient complains of headache, what are the red flags and what do I want to rule out?
- Any new headache is potentially worrisome. Do a careful mental status and neurologic exam → changes can be seen with migraines, but any changes in these exams should prompt further investigation.
- Other worrisome signs include fever, neck stiffness, N/V, visual changes, vital sign abnormalities.
- Bad causes of headache that you want to always think about: meningitis (or other CNS infection), tumor (or other space-occupying lesion), subarachnoid hemorrhage (or other CNS bleed), and temporal arteritis.

Are there any physical findings that are helpful in the diagnosis of meningitis?
- On exam, if the patient has no fever, no neck stiffness, and no altered mental status, then meningitis is effectively ruled out.
- There are very few studies on Kernig’s sign and Brudzinski’s sign so the utility of these tests is unknown.
- In patients with fever and headache, use the “jolt maneuver”. If the patient does not have pain when you jolt their head back and forth, then they don’t have meningitis (100% sensitive test).
- **The bottom line:** the utility of the physical exam in detecting meningitis is not great. Given the gravity of the illness, if you suspect meningitis, strongly consider lumbar puncture to definitely rule it out.

Which patients need a head CT before lumbar puncture?
- Proceed to head CT prior to LP if any of the following are present at baseline:
  - Age > 60 years, immunocompromised, history of CNS disease
  - History of seizure within one week prior to presentation
  - Any of the following neurologic abnormalities: an abnormal level of consciousness, an inability to answer two consecutive questions correctly or to follow two consecutive commands, gaze palsy, abnormal visual fields, facial palsy, arm drift, leg drift, or abnormal language (e.g., aphasia).

Should I use dexamethasone in my patient with bacterial meningitis?
- A recent NEJM study evaluated this question. These patients got the LP first, then dexamethasone, and then antibiotics. The problem is that the patients were healthy community patients that may differ significantly from our population (HIV, IVDU, neutropenia, etc).
- There was a morbidity and mortality benefit for pneumococcal meningitis. Whether steroids are useful in other forms of bacterial meningitis is unknown.
- For now, there is no solid recommendation. Each clinician must make their own decision. If you are going to give it, realize that it should be given before antibiotics (but don’t delay antibiotics!). Also, there is some experimental data that steroids decrease vancomycin penetration into the CSF. The treatment protocol if you are going to use it: dexamethasone 10 mg IV q6h x 4 days with the first dose given 20 minutes prior to or concurrent with antibiotics.

Initial antibiotic therapy (for suspected bacterial meningitis):
- **Never delay antibiotics!** Here we use CFTX 2g IV q12h + vancomycin (if worried about resistant pneumococcus) 15 mg/kg IV q6h (max 2-3g/day). Add ampicillin if *listeria* is a possibility.