Headache

- Primary
  - Tension
    - RFs: stressful day, depression, poor sleep
    - Etiology: unknown by likely similar to migraine pathophysiology
    - S/S: gradual onset viselike headache encircling entire head w/ focal intensity around neck and back of head, associated w/ back neck muscle contraction, rarely there is N/V/photophobia
    - Px: massage, relaxation, stress reduction and if they occur ≥2d/wk then start Rx w/ amitriptyline/mirtazapine/tizanidine/gabapentin b/c you want to avoid rebound headaches
    - Tx: Mild (NSAIDs, Tylenol), Severe (Migraine Tx)

- Cluster
  - RFs: adult men
  - Etiology: variant of migraine but begins in hypothalamus (hence autonomic Sx)
  - S/S: cluster (same time of year and hour of day esp before/during/after sleeping) of frequent (several times a day) for a few weeks, paroxysmal (no prodrome but sometimes alcohol is a trigger), short acting (15min-3hrs)
  - Px: 1° Verapamil 2° Lithium, Steroids, AEDs (topiramate)
  - Tx: 1° Oxygen, -ergotamines/-triptans 2° Opiates

- Migraine
  - Epidemiology: 10% of population
  - RFs: young women, FHx, stress, lack of sleep, hunger, foods (alcohol, milk products, chocolate, MSG), fatigue, alcohol, menstruation (2d before to the last day, 2/2 estrogen withdrawal), exercise, changes in weather
  - Etiology: various triggers (below) → release of inflammatory neuropeptides (substance P, neurokinin A and CGRP) from brainstem esp trigeminal neuro center → meningeal vasodilation and extravasation of inflammatory cells aka sterile inflammation → headache
  - S/S
    - Prodrome (50% of pts) excited CNS (elation, irritability, increased appetite, etc) or depressed CNS (sleepiness, fatigue, cognitive slowing, etc) which can precede headache up to 24hrs but usually w/in 1hr →
    - Aura (25% of pts called "Classic" but if no aura then called "Common") aura aka focal neurologic deficits (1° scintillating scotomata aka bright flashing crescent shaped images w/ jagged edges, blind spots, numbness, weakness, etc lasting minutes to 1hr but if these neuro deficits last ≥24hr then there is concern for true ischemic damage then it is called "Complicated Migraine")
    - Headache (90% of pts, if no headache then called "Acephalic Migraine" or "Migraine Equivalent") severe, unilateral (can occur anywhere on head, 1/3 bilateral, can sometimes switch sides during episode), throbbing/pulsatile headache lasting 4-72hrs, accompanied by N/V, etc, headache is aggravated by any movement, light (photophobia), sound (phonophobia), smell (osmophobia), etc →
    - Postdrome (50% of pts) fatigue and confusion often feels like pt is "hung over"
  - Px (indication: if frequent = ≥4 HAs/mo, if long lasting = ≥3d, if debilitating)
    - Eliminate Precipitant
    - Rx (low dose): 1° TCA (amitryptiline), BB (propranolol), 2° CCB (verapamil), AED (divalproex sodium, topiramate), SSRI (fluoxetine), NB cyproheptadine in children, NB Mefenamic Acid for menopause induced and NOT OCPs b/c 2x increased r/o ischemic CVA, etc
    - BoTox Injections
    - Herbals: Mg + Vit B2 + Feverfew (Migrainall), Coenzyme Q10, Petasite Herb, Riboflavin
    - Other: meditation, acupuncture, PT, etc
  - Tx
    - Abortants during Prodrome/Aura (stimulates 5-HT1 receptors on trigeminal nerve inhibiting further release of neuropeptides and thus subsequent vasodilation and sterile inflammation, contraindicated in any vascular dz state like CVD, CAD, PVD and even pregnancy b/c of the vasoconstriction that results, can result in serotonin syndrome if used w/ MAOIs/TCAs/SSRIs, etc, SEs: N/V/Dizziness/Somnolence/Tingling/Numbnness/Flushing/Esophageal-Spasms, only to be used <2x/wk, various t1/2 and durations)
      - 5-HT1a Agonists (-ergotamines): ergotamine (Cafergot), dihydroergotamine (Migranal IV, SQ, INH)
      - 5-HT1b Agonists (-triptans): sumatriptan (Imitrex, PO, SQ, INH), almotriptan (Axert), eletriptan (Relpax), frovatriptan (Frova), naratriptan (Amerge), rizatriptan (Maxalt), zolmitriptan (Zomig)
- **Treatments during Headache** (also still always try abortants, also Tx N w/ antiemetics esp phenergan which can also help pts sleep)
  - Mild: Aspirin + Tylenol + Caffeine (Excedrin Migraine), Aspirin + Butalbital + Caffeine + Codeine (Fiorinal w/ or w/o Codeine), Acetaminophen + Butalbital + Caffeine + Codeine (Esgic, Fioricet w/ or w/o Codeine), Acetaminophen + Aspirin + Caffeine (Excedrin Migraine), Acetaminophen + Butalbital (Phrenillin), Acetaminophen + Dichloralphenazone + Isometheptene (Midrin), Butorphanol (Butorphanol Nasal Spray)
  - Severe (status migrainous w/ S/S lasting over 72hrs, never mix, just give separately in buttock): Migranol IV/SQ/INH + Toradol IV + Reglan/Phenergan/Zofran IV + Decadron IV + Magnesium Sulfate IV + Benadryl IV + Haloperidol IV + Ativan IV
- **New Meds**: Calcitonin Gene Related Peptide (CGRP) receptor antagonist (eg. -cegapants)
- **Other**: thunderclap headache, headache on awakening, headache w/ sexual activity, exercise induced headache, benign cough headache

- **Secondary**
  - Vascular: stroke, HTN emergency, unruptured aneurysm, ruptured aneurysm w/ SAH, venous thrombosis, subdural/epidural hematoma, pituitary apoplexy, thalamic pain syndrome (unilateral headache wks-yrs following thalamic infarct)
  - Infection: meningitis, encephalitis, abscess
  - Tumor: any tumor
  - CSF: low ICP (post-LP) vs high ICP (hydrocephalus vs pseudotumor cerebri aka idiopathic intracranial hypertension) (RFSs: young obese female w/ vitamin A intoxication and tetracycline/OCP/glucocorticoid use, S/S: headache worse w/ coughing/supine and during morning + blurred peripheral vision 2/2 papillodema + horizontal diplopia 2/2 CN4 problem, Mech: high ICP but no evidence of an intracranial process and thus very likely 2/2 decreased CSF absorption, Dx: CT/MRI nl or will show slit like ventricles but NO hydrocephalus, CSF >25 cm H2O, Tx: therapeutic LP, avoid steroids, acetazolamide to reduce CSF production, weight loss and if no improvement then optic nerve sheath fenestration and VP shunt)
  - Extracranial: obstructive sleep apnea, sinusitis, TMJ syndrome, temporal arteritis, shingles, trigeminal neuralgia, dental disease, glaucoma
  - Meds: nitrates, alcohol withdrawal, caffeine withdrawal, chronic analgesic abuse w/ rebound (consider in pt who have frequent refractory headaches that occur when pt awakes, use of analgesics >2d/wk even med likes triptans, PUD, etc Tx start prophylactic Tx first then taper off the abused acute Tx over 1mo while also giving prednisone and dihydroergotamine)
  - Other: post-coital (seen in men close to orgasm, resolves after a few minutes, benign but if it doesn’t resolve suspect SAH)