Educational goals
- Quickly review some noteworthy research in primary care
- Relearn some things we’ve may've forgotten
- Comment on some evolving trends in primary care
- More specific goals are in the course syllabus
Disclosures

- Donald Middleton M.D.: Vaccine advisory boards for Sanofi Pasteur, Merck, and Pfizer.
Diagnosis?
Tuberculosis Facts

- 9,557 TB cases in US in 2015
- 493 deaths in US in 2014
- One third of the world's population infected with TB!!
- In 2015, 10.4 million people around the world became sick with TB disease.
- 1.8 million TB-related deaths worldwide. TB is a leading killer of people who are HIV infected.
Compared to “low-risk” skin test reactor (+PPD/-CXR)

High risk: HIV, transplant, silicosis, hemodialysis, carcinoma of the head or neck recent tuberculosis (≤2 years); abnormal CXR with apical fibronodular changes; TNF-alpha inhibitors

Moderate risk: steroid treatment, diabetes mellitus, young age when infected (≤ 4 years)

Slight risk: underweight (BMI <20); cigarette smoker; solitary granuloma on CXR

Below normal risk: positive two-step test with no other known risk factor and normal CXR
• An induration of $\geq 5$ mms is considered positive in
  – HIV-infected persons
  – Recent contact of a person with TB disease
  – Persons with fibrotic changes on chest radiograph consistent with prior TB
  – Patients with organ transplants
  – Persons who are immunosuppressed for other reasons (e.g., taking the equivalent of $>15$ mg/day of prednisone for 1 month or longer, taking TNF-a antagonists)
Tests for Tuberculosis: TST

• An induration of $\geq 10$ mms is considered positive in:
  – Recent immigrants ($<5$ yrs) from high-prevalence countries
  – Injection drug users
  – Residents/employees of high-risk congregate settings
  – Mycobacteriology laboratory personnel
  – Persons with clinical conditions placing them at high risk
  – Children age $<4$ yrs
  – Infants, children, and adolescents exposed to adults in high-risk categories
Tests for Tuberculosis

- An induration of $\geq 15\ mms$ is considered positive in any person, including persons with no known risk factors for TB.
- **Interferon-gamma release assay (IGRA)** preferred for diagnosis of latent tuberculosis infection (LTBI) in individuals age $\geq 5$ yrs
- TST rather than IGRA in healthy child age $< 5$ yrs

“Will Work for Peanuts”
Food for Thought
1-3% of children in US, ~100,000 new cases/yr
High risk: egg allergy, eczema; family history
Age 4-11 months; after few other foods eaten
7.7 gms (1.5 tspful) peanut protein/wk for 2 yrs; peanut butter with milk, peanut soup, Bamba snacks, ground peanuts
17% NOT consuming vs 3% consuming peanuts allergic at age 5 yrs; then avoid peanuts 1 yr: no ↑ed allergy
Remember choking: peanuts, peanut butter

I Need Help When:

- Confirmed or suspected IgE-mediated food allergy
- Recalcitrant, moderate to severe atopic dermatitis
- Sibling with peanut allergy
- History of other major allergic disorder
- Consider: allergist referral for skin prick testing or peanut specific IgE test before initiating peanut ingestion
Update on Drugs for Acute Migraine

• **Aspirin and/or acetaminophen +/- caffeine; NSAIDS**
  – Diclofenac powder: onset in 15 minutes

• **Triptans**
  – Oral triptans: almotriptan, eletriptan, frovatriptan, naratriptan, rizatriptan
  – Sumatriptan: oral tablets, nasal spray and powder, SQ injection; combination with naproxen (Treximet)
  – Zolmitriptan: oral tablets, nasal spray

• **Ergots**
  – Dihydroergotamine mesylate: IM, SQ, nasal
  – Ergotamine/caffeine: tablets, rectal suppository

• **Narcotics:** last ditch, I don’t even want to put them on the list! 25% benefit at best

• **Metoclopramide, prochlorperazine, promethazine for nausea prevention**

Acute Migraine Treatment in Children

- **Mild/moderate:** acetaminophen, NSAIDs
- **Moderate/severe:** triptan – sumatriptan + naproxen works well; if unable to swallow:
  - Oral disintegrating formulations: rizatriptan 5 mg wafer, zolmitriptan (2.5, 5 mg) tab, almotriptan (6.25, 12.5 mg) tab
  - Nasal sprays: zolmitriptan, sumatriptan
- **Ergots:** dihydroergotamine
- **Anticonvulsants:** valproate IV
- **Nausea/vomiting:** promethazine 0.15 mg/kg, prochlorperazine 0.15 mg/kg, or metoclopramide 0.2 mg/kg
# Acute Migraine Treatment in Children

## Adults

- **Beta Blockers:**
  - propranolol, metoprolol, nadolol, atenolol
- **Antiepileptic drugs**
  - valproate, topiramate
- **TCAs**
  - amitriptyline, nortriptyline
- **NSAIDs**
- **Others:**
  - verapamil; lisinopril; candesartan; venlafaxine; duloxetine; simvastatin plus vitamin D

## Children

- **Cyproheptadine:** 2-16 mg QHS
- **Propranolol:** 1-3 mg/kg/d
- **Amitriptyline:** 0.25-0.5 mg/kg/d
- **Riboflavin:** 25-400 mg/d
- **Topiramate:** 15 mg/d; 3mg/kg/d
- **Valproate:** 250-1000 mg/d
- **Gabapentin:** 100-1800 mg/d

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Drugs for Migraine. Med Let 1514. 2017;59:27-34
http://secure.medicalletter.org/TML-article-1514a
Diving for Pearls!

- NSAID and bone healing
- Muscle relaxants
- Fixed dose combination medications
Heather Sakely PharmD, BCPS

No financial disclosures.
NSAIDS after Fracture or Surgery

- **Benefits:** OTC, decreased opioid burden
- **Safety risk:** delayed bone healing
- **Evidence:**

[Chest and AAOS logos]
### NSAIDS after Fracture or Surgery

- Evidence (animal, human) – inconclusive
  - Significant variance: NSAID, dose, duration
- Bottom-line: Okay to use, BUT….
  - Bleeding (concomitant VTE prophylaxis)
  - Renal

<table>
<thead>
<tr>
<th>Outcome</th>
<th>High (H)/Moderate Risk (M)</th>
<th>Low (L)/Moderate (M)</th>
</tr>
</thead>
</table>
| CV      | (M): Etodolac, indomethacin, meloxicam  
  (M/H): Celecoxib, ibuprofen  
  (H): Diclofenac | (L) Aspirin, piroxicam  
  (L/M): Naproxen |
| GI      | (M): aspirin, diclofenac, diflunisal, fenoprofen, naproxen, sulindac, tolmentin  
  (M/H): indomethacin  
  (H): flurbiprofen, ketorolac, meclofenamate, oxaprozin, piroxicam | (L): celecoxib, etodolac, ibuprofen, meloxicam, nabumetone, salsalate  
  (L/M): mefenamic |
Muscle Relaxants

- Acute lower back pain
- 1/3 low back pain patients on muscle relaxant
- Do NOT directly relax muscle – efficacy from sedative effect.
- Reserve for SPACICITY (MS, spinal cord injury)

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baclofen</td>
<td>Intrathecal</td>
</tr>
<tr>
<td>Dantrolene (Dantrium)</td>
<td>Oral</td>
</tr>
<tr>
<td>Diazepam</td>
<td>Oral, IV, IM</td>
</tr>
<tr>
<td>Tizanidine (Zanaflex)</td>
<td>Oral</td>
</tr>
</tbody>
</table>
## Muscle Relaxants

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage Form</th>
<th>Abuse potential</th>
<th>Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carisoprodol (Soma)</td>
<td>Oral</td>
<td>Abuse potential</td>
<td></td>
</tr>
<tr>
<td>Chlorzoxazone (Parafon Forte, Lorzone)</td>
<td>Oral</td>
<td>TID to QID dosing</td>
<td></td>
</tr>
<tr>
<td>Cyclobenzaprine (Flexeril, Amrix)</td>
<td>Oral (and ER)</td>
<td>Generally 1(^{st}) line; efficacy evidence; avoid mod/severe hepatic impairment</td>
<td></td>
</tr>
<tr>
<td>Metaxalone (Skelaxin)</td>
<td>Oral</td>
<td>Contraindicated in severe liver/renal impairment; $$$</td>
<td></td>
</tr>
<tr>
<td>Methocarbamol (Robaxin)</td>
<td>Oral, IV, IM</td>
<td>Less sedating, therefore better for daytime use; fewer efficacy trials</td>
<td></td>
</tr>
<tr>
<td>Orphenadrine (Orfenace)</td>
<td>Oral, IV, IM</td>
<td>BID dosing; abuse potential, anticholinergic</td>
<td></td>
</tr>
</tbody>
</table>

**Bottom-line:**
- Schedule NSAID/APAP first
- CNS depression is ADDITIVE with CNS depressants
- Should first try NSAID, APAP
- Max duration: 7 days; 2-3 weeks
### Fixed Dose Combination (FDC) Drugs

<table>
<thead>
<tr>
<th>Risks</th>
<th>Mitigation Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical stability</strong></td>
<td>• BP meds – stable for 3 months</td>
</tr>
<tr>
<td></td>
<td>• Tolerability if adding a new med as combo</td>
</tr>
<tr>
<td></td>
<td>• Frequent hospital transfers?</td>
</tr>
<tr>
<td><strong>Inability to titrate</strong></td>
<td>• Before starting, review dosage form options.</td>
</tr>
<tr>
<td></td>
<td>• Are there dosage forms to titrate up/down?</td>
</tr>
<tr>
<td><strong>Cost</strong></td>
<td>• Insurance coverage</td>
</tr>
<tr>
<td></td>
<td>• If covered, what tier?</td>
</tr>
<tr>
<td><strong>Medication Adherence</strong></td>
<td>• Root cause analysis of medication non-adherence</td>
</tr>
<tr>
<td></td>
<td>• Is frequency of dosing any different? Likely not.</td>
</tr>
</tbody>
</table>

### Pricing

**Valsartan-hydrochlorothiazide**
- 80-12.5 mg (90): $353.52
- 160-12.5 mg (90): $384.64
- 160-25 mg (90): $436.20
- 320-12.5 mg (90): $487.33
- 320-25 mg (90): $552.87

**Valsartan**
- 40 mg (30): $116.65
- 80 mg (90): $418.36
- 160 mg (90): $449.86
- 320 mg (90): $569.10

**Hydrochlorothiazide**
- 12.5 mg (100): $82.43
- 25 mg (100): $8.48
- 50 mg (100): $16.45

Pricing from Lexi-comp. 3.7.17
Pearls 2017
James C. Dewar M.D.

Disclosures: Nada
Attributions:
Essential Evidence
Up To Date
Making a diagnosis of endometriosis in women with chronic or recurrent pelvic pain can be time consuming, invasive and expensive.

The gold standard for diagnosing endometriosis is laparoscopy.
CA-125: New Use for an Old Test

• Cut off of ≥ 30 units/ml
• Specificity of 93%
• Sensitivity of 52%
  – 23% for mild disease
  – 63% for moderate-severe disease
• “rule in” vs “rule out” tests
• However…….
Patients had symptoms suggestive of endometriosis
 Patients should have testing to rule out other causes of an elevated CA-125
 Pelvic Ultrasound should be enough for most patients
### Conditions associated with an elevated serum CA 125 concentration

<table>
<thead>
<tr>
<th>Gynecologic malignancies</th>
<th>Nongynecologic conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epithelial ovarian, fallopian tube, and primary peritoneal cancers</td>
<td>Cirrhosis and other liver disease</td>
</tr>
<tr>
<td>Endometrial cancer</td>
<td>Ascites</td>
</tr>
<tr>
<td><strong>Benign gynecologic conditions</strong></td>
<td>Colitis</td>
</tr>
<tr>
<td>Benign ovarian neoplasms</td>
<td>Diverticulitis</td>
</tr>
<tr>
<td>Functional ovarian cysts</td>
<td>Appendicular abscess</td>
</tr>
<tr>
<td>Endometriosis</td>
<td>Tuberculosis peritonitis</td>
</tr>
<tr>
<td>Meig syndrome</td>
<td>Pancreatitis</td>
</tr>
<tr>
<td>Adenomyosis</td>
<td>Pleural effusion</td>
</tr>
<tr>
<td>Uterine leiomyomas</td>
<td>Pulmonary embolism</td>
</tr>
<tr>
<td>Pelvic inflammatory disease</td>
<td>Pneumonia</td>
</tr>
<tr>
<td>Ovarian hyperstimulation</td>
<td>Cystic fibrosis</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>Heart failure</td>
</tr>
<tr>
<td>Menstruation</td>
<td>Myocardopathy</td>
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<tr>
<td></td>
<td>Myocardial infarction</td>
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<tr>
<td></td>
<td>Pericardial disease</td>
</tr>
<tr>
<td></td>
<td>Renal insufficiency</td>
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<tr>
<td></td>
<td>Urinary tract infection</td>
</tr>
<tr>
<td></td>
<td>Recent surgery</td>
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<tr>
<td></td>
<td>Systemic lupus erythematosus</td>
</tr>
<tr>
<td></td>
<td>Sarcoidosis</td>
</tr>
<tr>
<td><strong>Nongynecologic cancers</strong></td>
<td>Breast</td>
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<tr>
<td></td>
<td>Colon</td>
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<tr>
<td></td>
<td>Liver</td>
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<td></td>
<td>Gallbladder</td>
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<td></td>
<td>Pancreas</td>
</tr>
<tr>
<td></td>
<td>Lung</td>
</tr>
<tr>
<td></td>
<td>Hematologic malignancies</td>
</tr>
</tbody>
</table>

CA: cancer antigen.

Data from:
Recovery is often slower than we think
- Pain generally decreases rapidly in the first 2 weeks
- Grade 1 and 2 sprains
  - 40% “excellent” recovery at 3 months
  - 60% “excellent” recovery at 6 months
- 5 to 33% report some pain after one year
- Healing rates are very variable (not grade based)
- 36 to 85% of patients have full recovery in 3 years
Treatment options

• Initial
  – Rest
  – Ice
  – Compression
  – Elevation
  – Splinting

• Home based exercises and progressive activity

• Formal PT and progressive activity
Treatment options

- No difference in 3 and 6 month outcomes with PT (seven sessions) vs home tx
Glove vs Glove: The Final Showdown
Mano a Mano

- Exam Glove: Fresh Contender
- Sterile Glove: Classic Champ
• Minor Outpatient Procedures
  – Excisions
  – Moh’s Surgery
  – Laceration repairs
• 9600+ patients total
• By a noninferiority decision: Exam Glove!
• Brewer JD, Gonzalez AB, Baum CL, et al. Comparison of sterile vs nonsterile gloves in cutaneous surgery and common outpatient dental procedures a systematic review and meta-analysis. JAMA Dermatol 2016;152(9):1008-1014.
Double your pleasure and decrease LOS?

DOUBLE YOUR PLEASURE
DOUBLE YOUR FUN

WRIGLEY'S
DOUBLEMINT
Chewing gum after abdominal surgery

- Open elective surgery
  - LOS 9.5 days vs 14 days
  - Ileus 27% vs 48%
  - Didn’t seem to work as well with colostomies
  - Narcotic analgesia was not first line therapy

Chewing gum after abdominal surgery

- Laparoscopic colorectal surgery
  - LOS is the same
  - First flatus: 18 vs 34 hours
  - First BM: 19 vs 34 hours
  - Stoma patients also had shorter time to BM
  - Only stoma patients got narcotics

Biggest Drawback: High Doses Needed