Headaches in Primary Care

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Baylor Scott & White Healthcare
Disclosures & Shameless Plug

- Family Physician
- No conflicts of interest
- UCNS Certified in Headache Medicine
- Just one blind man at the elephant
- You can learn a lot at a Headache meeting
Learning Objectives

1. Increase awareness and interest of primary headaches in primary care and provide a clinical framework for the diagnosis, prophylaxis, and treatment of migraine.

2. Discuss the distinction between primary and secondary headaches.

3. Identify risk factors for migraine progression and develop a plan for headache treatment based upon migraine staging.

4. Make it worth your time.
Don’t perform neuroimaging studies in patients with stable headaches that meet criteria for migraine
Don’t perform CT imaging for headache when MRI is available, except in emergency settings
Don’t recommend surgical deactivation of migraine trigger points outside of a clinical trial
Don’t prescribe opioid or butalbital-containing medications as first-line treatment for recurrent headache disorders
Don’t recommend prolonged or frequent use of over-the-counter pain medications for headache
Migraine in 4 Sentences or less

• It is Neurological
• It is Genetic
• It is Highly Disabling
• It is infinitely treatable
• And it is by far the most fascinating neurological condition you can treat!

Peter Goadsby, MD
Our Blind Spot

You’ll never find what you’re not looking for
Limbic Influences in Migraine

- All Pain has meaning
- The Sorrow that hath no vent in tears may make organs weep – Henry Maudsley
- (When) the mind is hurt the body cries out Italian Proverb
- The body remembers what the mind forgets – J.L. Moreno
Not All Pain is Nociceptive

- San Francisco Spine study 1992
- Five childhood traumas: Loss of parent, emotional neglect, substance abuse, physical abuse, sexual abuse
- No risk factors = 95% chance surgical cure
- 1-2 risk factors = 73% chance surgical cure
- 3 or more risk factors = 15% chance of a surgical cure
- Increased incidence of Chronic Migraine in victims of Sexual Abuse.
Headaches in Primary Care

- **Primary** – nervous system you are born with or acquire (trauma) and the environment you are in
  - Migraine, Cluster, Tension Type

- **Secondary** – headaches that are caused by something else
  - Infection, Mass, Vascular, Trauma
SNOOP4: Ruling Out Secondary Causes of Headache in Migraine

S - Systemic symptoms and signs
N - Neurologic symptoms or signs
O - Onset: peak at onset or <1 minute
L - Older: after age 50 years
P - Previous headache: pattern change
P - Postural, positional aggravation
P - Precipitated by valsala, exertion, etc.
P - Papilledema

# Headache Pattern Recognition

<table>
<thead>
<tr>
<th></th>
<th>Minutes</th>
<th>Hours/Days</th>
<th>Weeks/Months</th>
<th>Months/Years</th>
<th>Vascular</th>
<th>Infectious</th>
<th>Inflammatory, Neoplastic</th>
<th>Primary headache</th>
</tr>
</thead>
</table>

**Secondary Headache Disorders**
Imaging

• Pattern recognition
  – Abnormal Neurological exam
• When to get a CT – suspect a bleed
• When to get an MRI
  – Mass/Aneurysm
  – Pressure HA – High or Low (low must have contrast)
• Remember a radiologist is talking
  – WMLUS
Headaches in Clinical Practice

- Migraine
- Tension Type Headache (TTH)
- Trigeminal Autonomic Cephalalgias
  - Cluster
  - Cough
  - Stabbing
  - Hemicrania Continua
- New Daily Persistent Headache (NDPH)
Trigeminal Autonomic Cephalalgias Cluster Headache

- Usually no aura
- Peak pain in 10 to 15 minutes
- Duration 15 minutes to 1 hours
- Unilateral, Side-locked-rarely switches sides
  - Ipsilateral conjunctival injection and/or lacrimation
  - Ipsilateral nasal congestion and/or rhinorrhea
  - Ipsilateral miosis and/or ptosis
- 1 - 3 attacks per day
- Described as excruciating, boring, burning pain; usually non-throbbing
Trigeminal Autonomic Cephalalgias
Cluster Headache

Prevalence: 0.1%
Male : Female Ratio: 3 to 6:1
Age at onset: Late 20s (3 to 65)
Periodicity: Spring and autumn
Clusters: 1 to 2 cycles per year; lasting for 2 to 3 months.
Remission: Average 2 years (2 months to 20 years)
Cluster vs. Migraine

- LOE = SIMU
- Periodic nature
- Awaken from sleep: middle of night vs. early morning
- Movement: avoidance vs. pacing
- Thoughts of harm
Trigeminal Autonomic Cephalalgias
Cluster Headache Treatment

• Acute
  – High flow O₂ 10 -12 or 12-15L/m by NRB
    • Not covered by Medicare
  – Parental/Nasal DHE-Triptan
    • Oral meds aren’t fast enough

• Preventive
  – Steroid Burst
  – Occipital Nerve Block with Steroids
  – Verapamil – must be instant release
    • Start @ 80-120 BID – Increase to TID
      – Titrate up till Cluster stops or side effects intolerable
      – EKG 3 days after dose increases >360mg & yearly
Trigeminal Autonomic Cephalalgias
Indomethacin Sensitive

- Hemicrania Continua – Unilateral 24/7
- Cough – *res ipsa loquitur*
- Stabbing aka “Ice Pick”
- Melatonin 10 – 20 mg @ evening meal
- Boswellia ~250mg TID with meal
- Indomethacin up to 225mg daily /c GI protection
New Daily Persistent Headache

• That day, that day, that’s the day the headache started
• Within 3 days HA is 24 / 7 / 365
• ≈ 30% associated with mild viral infection
• Considered one of the most refractory headaches seen in tertiary clinics.
• Treat early & aggressive
  – Prednisone 60-80mg/day X 5 – 7 days
  – Blocks
  – DHE infusion
More than a Headache

- TTH & Migraine 2nd & 3rd most prevalent medical disorder worldwide
- Migraine accounts 30% of global burden of disability & 50% of all Neuro disability
- 4th leading cause of disability in women & 7th overall

Lancet 2012
Tension Type Headache

- Larger financial impact than migraine 2’ to incidence
- Not Localized, Not Throbbing, Not Worsened by Activity, Not Severe
- Difficult to distinguish from Migraine
  - Self-diagnosis unreliable – 84% have migraine
- No neurological, autonomic, or migrainous features
- Slight Female predominance $5\text{♀}:4\text{♂}$
- Onset before 30yoa, Peak prevalence 40–49, 25% carry into their 60’s
Tension Type Headache

**Acute Treatment**
- APAP 500-1000mg
- ASA 500-1000mg
- Ibuprofen 200–800mg
- Ketoprofen 25-50mg
- Naproxen 375-550mg
- Diclofenac 12.5 – 100mg
- Caffeine 65-200mg

**Preventive Treatment**
- Amitriptyline 30 – 75mg
- Mirtazapine 30mg
- Venlafaxine 150mg
- Clomipramine 75 – 150mg
The Convergence Hypothesis

Are you a Lumper or a Splitter?
Spectrum Study

**Trial Design**
- 3 centers
- Randomized DB-PC-CO
- IHS migraine (1.1; 1.2)
- Up to 10 HAs; 6 months
- 273 patients; 1,727 HAs
- Suma 50mg vs. placebo

**Study Populations**
- Migraine
- Migrainous
- Tension-type
- Disability in top 50%
- Compare clinical and diary diagnosis
- Compare treatment response based on diagnosis

Headache Response at 4 Hours for Migraine Population

Percentage of Headaches

- **Migraine**: 66% (Sumatriptan 50 mg), 48% (Placebo)
- **Migrainous**: 71% (Sumatriptan 50 mg), 39% (Placebo)
- **ETTH**: 78% (Sumatriptan 50 mg), 50% (Placebo)

* n=1110, n=103, n=363


* P < 0.001
** f < 0.01
The Final Common Pathway

The Migraine Brain

- Genetic hyperexcitability:
  - Lower threshold for activation
  - Longer retention of sensory information
    - Between episodes of migraine
    - During episodes of migraine
- Hyper-vigilant 24/7
- A sensitive brain that doesn’t like change
- **Always more than a headache!**
Migraine – Most Common Headache in Clinical Practice

- Patients seen in primary care
- IHS diagnosis based on diary review


IHS, International Headache Society

N = 377
Severe Migraine Is Ranked in the Highest Disability* Class by WHO

<table>
<thead>
<tr>
<th>Disability Class</th>
<th>Severity Weights</th>
<th>Indicator Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.00-0.02</td>
<td>Vitiligo of face, weight for height less than 2 SDs</td>
</tr>
<tr>
<td>2</td>
<td>0.02-0.12</td>
<td>Watery diarrhea, severe sore throat, severe anemia</td>
</tr>
<tr>
<td>3</td>
<td>0.12-0.24</td>
<td>Radius fracture in a stiff cast, infertility, erectile dysfunction, rheumatoid arthritis, angina</td>
</tr>
<tr>
<td>4</td>
<td>0.24-0.36</td>
<td>Below-the-knee amputation, deafness</td>
</tr>
<tr>
<td>5</td>
<td>0.36-0.50</td>
<td>Rectovaginal fistula, mild mental retardation, Down syndrome</td>
</tr>
<tr>
<td>6</td>
<td>0.50-0.70</td>
<td>Unipolar major depression, blindness, paraplegia</td>
</tr>
<tr>
<td>7</td>
<td>0.70-1.00</td>
<td><strong>Active psychosis, dementia, severe migraine, quadriplegia</strong></td>
</tr>
</tbody>
</table>

*Assessments of disease severity determined by Global Burden of Disease researchers using the person trade-off method, which includes judgments about the trade-off between quality and quantity of life. Spectrum ranges from 0 (perfect health) to 1 (death).
Why Migraine
Why Should I Care?

- 6% ♂, 18% ♀, 33-37% reproductive ♀, 4% CDH
- Returning armed forces 38% ♂, 58% ♀, 20% CDH
- Most common 25 – 55yr (most productive years)

Primary Care and Chronic Migraine

- Over $\frac{1}{2}$ of the 2 million chronic migraine patients are seen by PCPs
- Even after referral patients still return to PCPs for management of comorbidities AND often their migraine
- There are 520 UNCS certified HA physicians;
- There are about 37 million people with migraine

United Council for Neurologic Subspecialties (UCNS), http://www.migraineresearchfoundation.org/resources-links.html
Staging Migraine

• Developed by Lipton, Cady, Farmer, & Bigal
• 1st doctor/patient book
• Based on frequency not severity of HA
## Migraine Stages

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
<th>Treatment Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1</td>
<td><strong>Infrequent Episodic</strong></td>
<td>Education plus effective acute treatment</td>
</tr>
<tr>
<td></td>
<td>– ≤ 1 Migraine/month</td>
<td></td>
</tr>
<tr>
<td>Stage 2</td>
<td><strong>Frequent Episodic</strong></td>
<td>Education plus effective acute treatment with back up; medications limits; preventive measures</td>
</tr>
<tr>
<td></td>
<td>– 2 - 6 headache days/month</td>
<td></td>
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<tr>
<td>Stage 3</td>
<td><strong>Transforming Migraine</strong></td>
<td>Education; preventive pharmacology; acute pharmacology with back up &amp; rescue; behavioral</td>
</tr>
<tr>
<td></td>
<td>– 7 - 14 headache days/month</td>
<td></td>
</tr>
<tr>
<td>Stage 4</td>
<td><strong>Chronic Migraine</strong></td>
<td>Education; preventive pharmacology; judicious acute pharmacology with back up and rescue; <strong>behavioral interventions</strong></td>
</tr>
<tr>
<td></td>
<td>– ≥ 15 headache days/month</td>
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</tbody>
</table>
Risk Factors for Progression

**Modifiable**
- Attack frequency
- Poorly treated acute HA
- Obesity
- Snoring/OSA
- Stressful life events
- Medication overuse
- Caffeine overuse

**Not Modifiable**
- Age
- Female sex
- Low education or socioeconomic status
- Genetic factors
- Head injury

OSA=obstructive sleep apnea
The Big Picture

Headache and neck pain

Medical comorbidities

Medication overuse

Detox

Relaxation

Biofeedback

Education

Prophylaxis

Acute Pharmacotherapy

Prophylactic Pharmacotherapy

Nutraceuticals

Physical therapy

Education

Stress

Relaxation

Biofeedback

CBT

Exercise

Psych Comorbidities

Pharmacotherapy

Antidepressants

Anxiolytics

Atypical anti-psychotics

Insomnia

Relaxation

Biofeedback

Exercise

Pharmacotherapy

CPAP

Medical therapy

Exercise

Relaxation

Medical comorbidities
Headache Treatments

- **Preventive** – reduce frequency, intensity, and improve response to acute meds
- **Abortive** – pain freedom in 2 hours
- **Rescue** – when the stop medicine didn’t
Headache Treatments

• **Preventive** – reduce frequency, intensity, & improve response to acute meds
  • **Abortive** – pain freedom in 2 hours
  • **Rescue** – when the stop medicine didn’t
Migraine Prevention Utilization

53% of migraineurs meet disability and frequency criteria for prevention

< 5% of migraineurs are on preventive therapy

Saves You Money!

• 18-month comparison study
• Acute vs. acute/preventive therapies
  – Office visits ↓ 51%
  – ED visits ↓ 82%
  – CT scans ↓ 75%  MRI scans ↓ 88%
  – Medication costs ↓ $48 - $138/month/patient

Prevention

- Consider when Migraine significantly disrupts ADLs, despite acute treatment
- Attack frequency >1/wk
- Only 5 FDA approved drugs for Migraine
- One FDA approved drug for Chronic Migraine
- Many off-label choices
- Start low and titrate as tolerated
AAN/AHS Preventive Recommendations

**Level A**
- Divalproex Sodium
- Sodium valproate
- Topiramate
- Metoprolol
- Propranolol
- Timolol
- Frovatriptan (MRM)

**Level B**
- Amitriptyline
- Venlafaxine
- Atenolol
- Nadolol
- Naratriptan (MRM)
- Zolmitriptan (MRM)
Prevention – Pound of Cure

- Supplements – Mg 500mg, Riboflavin 400mg, CoQ-10 200mg BID, Butterbur (should be PA free - HA docs starting to avoid Butterbur)
- Membrane Stabilizing medications-Valproate, Toprimate, Gabapentin…
- Anti-HTN Beta Blockers, CCB, ACE, Candesartan 16mg
- TCA (off-label) most data is with amitriptyline – SSRIs not thought to be effective
- OnabotulinumtoxinA -- FDA approved for Chronic Migraine, Oct 2010
Pericranial Bupivacaine Injections

- 218 Subjects
- 34 sites – 0.25% Bup
- Q 12 weeks
- 87.1% Female
- Age – 40.4 years
- Migraine for 18.5 years
- 21.4/28 days /c HA
- 15.5 Severe HA days
- 18.3 Treatment days

- 55.2% > 50% reduction
  - 35.3% achieved by 4 wk
- ↓ HA days 22.8d to 9d
- ↓ Severe 15.9d to 6.1d
- ↓ Treatment 18.1d to 7.9d
- 11.5% no response/Lost-FU
Pericranial Bupivacaine Injections

Robert Kaniecki, MD, University of Pittsburgh
Migraine Preventive Therapy

Possible reasons for lack of efficacy

• Inadequate duration (<6-8 wk) at suboptimal dose
• Poor Pt. adherence (side effects, half-life, unrealistic expectations)
• Concomitant drug-induced headache – Prevention unlikely to work in MOH
• Newly developed medical condition causing a secondary headache
Stress Management

They Can’t Find Anything Wrong
If you only read one book this year
www.stressillness.com
It Will Change Your Practice

Mary Jo Rapini – Psychotherapist
www.maryjorapini.com
Stress & Pain Management

The Relaxation & Stress Reduction Workbook

****1/2 174 reviews

Unlearn Your Pain

www.unlearnyourpain.com

***** 52 reviews
Stress Management -- EMDR

- ****1/2 163 reviews
- Creator of Eye Movement Desensitization and Reprocessing
- Simultaneous Dual Inputs
- One of the better psychological self–help books
Above all do not lose your desire to walk. Everyday I walk myself into a state of well being and walk away from every illness. I have walked myself into my best thoughts and I know of no thought so burdensome that one cannot walk away from it. But by sitting still, and the more one sits still, the closer one comes to feeling ill... if one keeps on walking everything will be alright.

- Soren Kierkegaard
Headache Treatments

• **Preventive** – reduce frequency, intensity and improve response to acute meds

• **Abortive** – pain freedom in 2 hours

• **Rescue** – when the stop medicine didn’t
Abortive Therapy

• Goal is pain freedom in 2 hours
• Treat at mild pain (prior to central sensitization)
• May use polypharmacy
Triptan Pearl: Treat @ Mild Pain Early Intervention Improve Efficacy

2 Hour Pain Free Response

<table>
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<tr>
<th>Pain Intensity When HA Treated</th>
<th>0%</th>
<th>20%</th>
<th>40%</th>
<th>60%</th>
<th>80%</th>
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</thead>
<tbody>
<tr>
<td>Mild</td>
<td>80%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
<td>58%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Cady RK et al  Headache 38:173-83 - Pascual J et al Headache 42[supl 1]:S10-S17
Ineffective Acute Therapy Leads to Migraine Progression

- Results from AMPP study
- Progression from EM to CM 3.1%/1 year
- Acute treatment evaluated as
  - Moderately effective, Poor, Very Poor
- Moderately effective  2.7% progressed
- Poor  4.4% progressed
- Very Poor  6.8% progressed

Neurology. 2015 Feb 17; 84(7) 688-695
Oral Therapies

• Non-triptan
  – NSAIDS
  – Combinations
    • APAP/ASA/caffeine
    • Analgesics
  – Antiemetics
• Triptans
• Ergotamines
• When to consider
  – First-line therapy
  – Adjunctive therapies

There is no medication that is perfect for all migraine attacks or all circumstances in which treatment is needed.
Step Care

1st Choice Treatment
- NSAIDs

2nd Choice Treatment
- NSAID Combination Drugs

3rd Choice Treatments
- Other Analgesics
- Combination Drugs

Last Choice Treatment
- Triptans
Stratified Care
Attack Based Care

Disability

Low Disability → NSAIDs
Moderate Disability → NSAIDs + neuroleptics or triptans
High or Severe Disability → Parenteral
Put Me in Coach!

- Manager in a “must win” game
- 2 – 1 lead
- Top 7th, 1 out, runner on 2nd
- Question at hand – can my pitcher get the next batter out?
- Depends—who’s the batter
- If call in a reliever Right or Left Handed
What I Do

- Soooooo Off-Label & Remember my patients aren’t yours
- 3 tablets Effervescent ASA + Mg 500mg or
- Ibuprofen 1000-1200mg + Mg
- Naproxen 500mg + Mg
- Augment /c Metoclopramide or Prochlorperazine
- Triptan – Sumatriptan, Rizatriptan & Naratriptan generic.
  - Generic Sumatriptan ≤$2/pill, GoodRX.com
Hot off the Presses!

• Timoptic % 1 drop OS/OD
  – Eye exam 1st but…
  – Not needed is used sub lingual

• Clinical trial underway
  – https://clinicaltrials.gov/ct2/show/NCT02630719

• Articles on the DVD
Headache Treatments

• **Preventive** – Reduce frequency, intensity and improve response to acute meds
• **Abortive** – Pain freedom in 2 hours
• **Rescue** – When the stop medicine didn’t
Why Should I Treat Acute Headaches?

• Have to keep these people out of the ED
• Primary HAs are not an emergency
• Not the best place – too bright, too loud, often ignored
• Can’t risk exposure to opiates
• More likely to V.O.M.I.T. in ED
No Opiates for Headaches

- Major risk factor for Medication Overuse HA
- Once established it’s a self fulfilling prophesy
- Jakubowsk, et al. 2005  Wolfe Award paper
- 64%-71% Migraine pts pain-free 1’ /p ketorolac iv
- Only factor that predicted ketorolac failure: hx of opioid txt in the nonresponders
- Rewires the brain to perpetuate the HA state by inhibiting the breakdown of glutamate
Reasons Not to Use Opioids for Migraine Rescue

• Use of oral opioids associated with likelihood of increased headache\(^1\)
• ED treatment with opioids associated with more refractory headaches down the road\(^2\)
• Does not disrupt underlying pathophysiology
• Requires multiple successive doses

2. Jakubowski, Headache, 2005
Clinical Headache Rescue

• Assoc. Neurologist of S. CT AHS SA Poster
• Drop in HA Clinic – Prevent ED visits
• 9/05 - 8/07 500 pts
• Time to Present = 104 hours (8-240h)
• VAS pain: Entry 8.5 Discharge 1.5
• Txt: IVF (94%), Ketorolac (84%), Suma sq (78%), Prochlorperazine (52%), Metoclopramide (21%), DHE (8%), Mg (4%)
• Average charge $426 Average payment $272.64
Clinical Headache Rescue
UAB experience

- 200 pts. Randomized Optimal Self Admin or Optimal Self Admin + Optional in-clinic Headache rescue

<table>
<thead>
<tr>
<th>Optimal Self- Admin</th>
<th>Clinic Rescue</th>
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<tr>
<td></td>
<td>423 visits</td>
</tr>
<tr>
<td></td>
<td>33.6K ($80)</td>
</tr>
<tr>
<td>73</td>
<td>ED Visits</td>
</tr>
<tr>
<td>147.9K($2027)</td>
<td>ED Direct Cost</td>
</tr>
<tr>
<td></td>
<td>45.3K ($1609)</td>
</tr>
<tr>
<td></td>
<td>79% no d/a &gt; 24’</td>
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</table>
Clinical Headache Rescue
UAB experience

• 89% very satisfied

<table>
<thead>
<tr>
<th>Drug</th>
<th>#</th>
<th>Drug Cost</th>
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</thead>
<tbody>
<tr>
<td>Droperidol 2.75mg</td>
<td>218</td>
<td>3.00</td>
</tr>
<tr>
<td>Diphenhydramine 50mg</td>
<td>201</td>
<td>1.25</td>
</tr>
<tr>
<td>DHE 1mg</td>
<td>167</td>
<td>42</td>
</tr>
<tr>
<td>Prochlorperazine 5-10mg</td>
<td>141</td>
<td>11.5</td>
</tr>
<tr>
<td>Promethazine 50mg</td>
<td>68</td>
<td>4.0</td>
</tr>
<tr>
<td>Ketorolac 30mg</td>
<td>38</td>
<td>9 + 11 (saline)</td>
</tr>
</tbody>
</table>
Rescue Headache Interventions

- IV >> IM >> PO
- Sumatriptan 6mg IM/SC
- Dihydroergotamine 1mg IM/SC/IV
- Ketorolac 30mg IV / 60mg IM
- Neuroleptics – Dopamine Antagonists (Droperidol, Metoclopramide, Prochlorperazine)
- Steroids
- Others – Mg++, Valproic Acid, Diphenhydramine
- Procedures – Occipital Nerve Block, Lower Cervical Intramuscular Injections
Procedures

- Lower Cervical Intramuscular Injections
- Occipital Nerve Block
- Sphenopalatine Ganglion Block
Lower Cervical Intramuscular Injections

- Headache 10/06
- 417 ED Pts / 1 yr
- 65% relief in 15m
- Repeat injection brought additional relief
- Worsened HA in 1%
Lower Cervical Intramuscular Injections

- 3mL bupivacaine 0.5%
- 25g 1.5” / 27g 1.25”
- 2-3cm lateral to the spinous processes between C6 & C7
- AE /CI
- Vasovagal, Neck stiffness, usual injection risks
Occipital Nerve Block

- Local anesthetic (bupivacaine). 5% lidocaine 1% -- Duration of anesthesia doesn’t correlate to duration of relief
- Steroid (triamcinolone 40mg/mL) evidence doesn’t support general use
- 3mL total per side
- 25 or 27 gauge needle
- May place as a “ridge” of anesthesia, “trigger points”, or fixed.
Occipital Nerve Block

FIG. 15-10. Greater and lesser occipital nerve block. Note the greater and lesser occipital nerve branches crossing the superior nuchal line approximately halfway between the greater occipital protuberance and the mastoid process. Superficial infiltration along this line will produce analgesia of the posterior scalp. The greater occipital nerve can be located by identifying the pulsations of the posterior occipital artery, which crosses the nuchal line in company with the nerve.
Occipital Nerve Block

- AEs & CIs
- Prior hx of craniotomy over injection site
- AEs primarily related to steroid- fat atrophy, alopecia, pigment change
- Vagal response – Happened to me X 3 in over 6000 blocks
Sphenopalatine Ganglion Block

- Multiple commercial devices now available
- Videos on youtube.com
- Tian TX 360
  - http://tianmedical.com/
- Sphenocath
  - http://www.sphenocath.com/
- Allevio
  - http://alleviospg.com/