Headaches in Pregnancy and the Puerperium

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Headaches in Pregnancy and the Puerperium

• Headaches in pregnancy
  – Secondary
  – Migraine

• Post-partum headaches
Headaches in Pregnancy and the Puerperium

• Headaches in pregnancy
  – 5% affected by new headache or headache type

• Post-partum headaches
  – 40% of post-partum women report headaches

# Headache Classification

<table>
<thead>
<tr>
<th>Primary Headaches</th>
<th>Secondary Headaches</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Migraine</td>
<td>• Trauma</td>
</tr>
<tr>
<td>• Tension-type</td>
<td>• Vascular disorders</td>
</tr>
<tr>
<td>• Cluster</td>
<td>• Non-vascular intracranial disorder</td>
</tr>
<tr>
<td>• Other primary headaches</td>
<td>• Substances/withdrawal</td>
</tr>
<tr>
<td></td>
<td>• Infection</td>
</tr>
<tr>
<td></td>
<td>• Disorder of homeostasis</td>
</tr>
<tr>
<td></td>
<td>• Disorder of extracranial structures</td>
</tr>
<tr>
<td></td>
<td>• Psychiatric disorder</td>
</tr>
<tr>
<td></td>
<td>• Cranial neuralgia</td>
</tr>
</tbody>
</table>
Headaches in Pregnancy
Secondary Headaches
# Pregnancy Considerations

## Primary Headaches
- Migraine
- Tension-type

## Secondary Headaches
- Preeclampsia/eclampsia
- RCVS
- Intracranial hemorrhage
- IIH
- Intracranial tumor
- Venous/sinus thrombosis
- Stroke
- Pituitary apoplexy
Clinical Headache Presentations

• Secondary headaches: 1-3%
• Migraine: 94-95%
• Other primary headache syndromes: 3-4%
Clinical Headache Presentations

• Secondary headaches: 1-3%
• Migraine: 94-95%
• Other primary headache syndromes: 3-4%

• But pregnant and post-partum situations raise the stakes
  – 35% of acute headache presentations are secondary

Robbins et al. Neurology 2015;85:1024-1030
Profiling Secondary Headache

– First/worst headache
– Abrupt onset headache
– Progression or fundamental change in pattern
– New headache in those <5yo, >50yo
– New headache in high-risk clinical settings
– Headache with syncope or seizure
– Headache triggered by exertion/valsalva/sex
– Neurologic symptoms >1hour in duration
– Abnormal general or neurological examination
Workup of Potential Secondary Headache

• Neuroimaging
  – ED/Acute – Head CT
  – Outpatient/subacute – MRI
  – Low threshold for MRA and MRV

• Special settings
  – LP

• No role for EEG
# Diagnostic Procedures

<table>
<thead>
<tr>
<th>Test</th>
<th>Risk to Mother</th>
<th>Risk to Fetus</th>
<th>Contraindication</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEG</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Ultrasound</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Duplex-Doppler</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Orbital (A/B scan)</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Echocardiogram</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Lumbar puncture</td>
<td>None</td>
<td>None</td>
<td>Incipient herniation</td>
</tr>
<tr>
<td>Head CT</td>
<td>None</td>
<td>Minimal*</td>
<td>None</td>
</tr>
<tr>
<td>Head CT with contrast</td>
<td>None</td>
<td>Minimal*</td>
<td>Dye allergy</td>
</tr>
<tr>
<td>Head CTA and CTV</td>
<td>None</td>
<td>Minimal*</td>
<td>Dye allergy</td>
</tr>
<tr>
<td>Angiography</td>
<td>None</td>
<td>Minimal*</td>
<td>Dye allergy</td>
</tr>
<tr>
<td>Head MRI</td>
<td>None</td>
<td>None known</td>
<td>Metal, devices</td>
</tr>
<tr>
<td>Head MRV</td>
<td>None</td>
<td>None known</td>
<td>Metal, devices</td>
</tr>
<tr>
<td>VF</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

*With abdominal shielding.

CT indicates computed tomography; CTA, computed tomography arteriogram; CTV, computed tomography venogram; EEG, electroencephalography; MRI, magnetic resonance imaging; MRV, magnetic resonance venography; VF, visual field.

Adapted in part from Digre et al.³

CT contrast FDA class B, gadolinium class C
Idiopathic Intracranial Hypertension
Preeclampsia

RCVS

Lymphocytic Hypophysitis
Headaches in Pregnancy

Migraine
Migraine Headache

Population prevalence

![Graph showing one year period prevalence of migraine headache by age and gender. The graph includes data for both females and males, with a peak prevalence in the 40-50 year age range for females and a lower, more consistent prevalence for males across all ages.](image-url)
Migraine without Aura

Diagnostic criteria

• 1.1 Migraine without aura
  – At least 5 attacks (4-72 hours)
  – Pain features (at least 2)
    • Unilateral
    • Pulsating
    • Moderate to severe intensity
    • Aggravated by activity
  – Associated features (at least 1)
    • Nausea and/or vomiting
    • Photo and phonophobia
  – No organic disease
Migraine with Aura

Diagnostic criteria

• 1.2 Migraine with Aura
  – At least 2 attacks
  – Aura consisting of at least one of the following
    • **Fully reversible** visual symptoms
    • **Fully reversible** sensory symptoms
    • **Fully reversible** dysphasic symptoms
  – At least 2 of the following
    • Hemifield or hemisensory symptoms
    • Development over 5 minutes
    • Each symptom last >5 and <60 minutes
  – Headache fulfilling criteria for Migraine without aura begins during or follows aura within 60 minutes

ICHD-3 beta Cephalalgia 2013;33:609-828
Effects of Pregnancy on Migraine

• Migraine without aura typically improves
• Migraine with aura typically does not

• Migraine may develop during pregnancy
  – More common in those with aura
Course of Migraine without Aura

Management of Migraine

- Address medication overuse
- Natural migraine prevention
- Medical migraine prevention
- Appropriate medication for acute attacks
Lifestyle Recommendations

‘Natural” measures of brain restoration

• Schedule regulation
  – Sleep
  – Meals
  – Exercise
  – Hydration
  – School/work attendance

• Stimulant restriction/elimination

• “Trigger” avoidance
### Acute Migraine Medications

<table>
<thead>
<tr>
<th>Medication (Evidence)</th>
<th>FDA pregnancy rating</th>
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<tbody>
<tr>
<td>Acetaminophen (A*)</td>
<td>B</td>
</tr>
<tr>
<td>Ibuprofen, Naproxen (A)</td>
<td>C (D after 30 weeks)</td>
</tr>
<tr>
<td>Aspirin (A)</td>
<td>D</td>
</tr>
<tr>
<td>Triptans (A)</td>
<td>C</td>
</tr>
<tr>
<td>Butorphanol (A, C*)</td>
<td>C</td>
</tr>
<tr>
<td>Butalbital (C)</td>
<td>C</td>
</tr>
<tr>
<td>Prochlorperazine (B*)</td>
<td>C</td>
</tr>
<tr>
<td>Metoclopramide (B*)</td>
<td>B</td>
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Triptans in pregnancy

- Triptan registry information
  - No significant increase in major congenital malformations

Ephross et al. Headache 2014;54:1158-1172
Triptans in pregnancy

• Triptan registry information
  – No significant increase in major congenital malformations

• Meta-analysis of 6 studies (4208 exposures)
  – No increased risk of malformations or prematurity
  – Increased rate of spontaneous abortions
  – Increased rate of major congenital malformations in the non-triptan migraine subgroup

Cognitive and Behavioral Treatment Recommendations

• Relaxation training, thermal and electromyographic biofeedback, and cognitive-behavioral approaches (Grade A)
• Behavioral therapy may enhance effectiveness of preventive drug therapy (Grade B)
• Data insufficient for acupuncture, hypnosis, TENS, chiropractic/osteopathic manipulation
Migraine Preventive Medications

- **Medication (Evidence)**
  - Sodium valproate (A)
  - Topiramate (A)
  - Amitriptyline (B)
  - Venlafaxine (B)
  - Propranolol (A)
  - Metoprolol (A)
  - Timolol (A)
  - Atenolol (B)

- **FDA pregnancy rating**
  - D
  - D
  - C
  - C
  - C
  - C
  - C
  - D

Migraine Preventive Measures

- Procedure (Evidence)
  - OnabotulinumtoxinA (A)
  - Pericranial blocks (B*)
    - Lidocaine
    - Bupivacaine
  - Magnesium (B)
  - Riboflavin (B)

- FDA pregnancy rating
  - C
  - B
  - C
  - B*
  - C

Effects of Migraine on Pregnancy

• Increased risks for:
  – Gestational hypertension (OR 2.85)
  – Preeclampsia and eclampsia (OR 4.0)
  – Ischemic stroke (OR 7.9)
  – Myocardial infarction (OR 4.9)
  – Thromboembolic events (DVT 2.4, PE 3.1)

Wabnitz et al. Cephalalgia 2015;35:132-139
Post-partum Headaches
## Post-partum Considerations

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<td>• Meningitis</td>
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<td>• Low pressure headache</td>
</tr>
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<td>• Cervical artery dissection</td>
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Post-partum abrupt-onset headache
Post-partum Pituitary Hemorrhage,
Post-LP Headache

Acute Migraine Medications

- Medication (Evidence)
  - Acetaminophen (A*)
  - Ibuprofen, Naproxen (A)
  - Aspirin (A)
  - Triptans (A)
  - Butorphanol (A, C*)
  - Butalbital (C)
  - Prochlorperazine (B*)
  - Metoclopramide (B*)

- Hale lactation rating
  - L1
  - L1, L3
  - L3
  - L3 (Suma approved AAP)
  - L2
  - L3
  - L2

Migraine Preventive Medications

- Medication (Evidence)
  - Sodium valproate (A)
  - Topiramate (A)
  - Amitriptyline (B)
  - Venlafaxine (B)
  - Propranolol (A)
  - Metoprolol (A)
  - Timolol (A)
  - Atenolol (B)

- Hale lactation rating
  - L4
  - L3
  - L2
  - L2
  - L2
  - L2
  - L3

Choosing Wisely in Headache

- Recommendations
  - Don’t perform neuroimaging in patients with stable headaches meeting criteria for migraine
  - Don’t perform CT for headache when MRI is available, except in emergent settings
  - Don’t recommend surgical procedures for migraine outside the context 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

Loder et al. Headache 2013;1651-1659
Questions