MIGRAINES IN PREGNANCY

FLAME LECTURE: 37

MECKLER 12.21.19

LEARNING OBJECTIVES

- Identify the different types of headaches
- Differentiate between preeclampsia headache and migraine
- Describe the clinical symptoms, diagnosis, and treatment of migraines in pregnancy
- See also:
  - FLAME LECTURE 104: Diagnosing Preeclampsia/HELLP
  - FLAME LECTURE 149A: Oral Contraceptive Pills (OCPs)

TYPES OF HEADACHE DISORDERS

MIGRAINE

- **Often unilateral, throbbing**
- Associated symptoms: nausea, vomiting, **photophobia**, phonophobia
- With or without aura
- Triggers: stress, menstruation, visual stimuli, weather, fasting, sleep disturbance

TENSION

- **Bilateral, non-throbbing**
- Band-like across temples
- Mild to moderate intensity

CLUSTER

- **Severe unilateral** pain attacks that are **orbital, supraorbital, or temporal**
- *Autonomic signs*: ptosis, miosis, lacrimation, rhinorrhea
- Reach full intensity within minutes and last less than two hours

HEADACHES IN PREGNANCY
OVERVIEW

- 10% of pregnant patients with a primary headache initially present, or are first diagnosed, during gestation
- Among women with new-onset or atypical headache during gestation:
  - 1/3 are migraines
  - 1/3 are a preeclampsia/eclampsia-related headache
  - 1/3 are 2/2 to other causes
    - Infection, stroke, meningioma, mass lesion/tumor, benign intracranial hypertension, cerebral venous sinus thrombosis, intracranial hemorrhage, medication rebound, cluster headache, tension-type headache

HEADACHES ARE A COMMON ASPECT OF PREECLAMPSIA SPECTRUM

Preeclampsia

- Associated with new onset of hypertension and end-organ dysfunction with or w/o proteinuria after 20 weeks gestation in a previously normotensive woman

Eclampsia

- Development of tonic-clonic seizures in a woman with preeclampsia

HELLP Syndrome

- **H**emolysis, **E**levated **L**iver enzymes, **L**ow **P**latelets
- Severe form of preeclampsia but it may be an independent disorder

MIGRAINES VS. PREECLAMPSIA

- Migraines are differentiated from preeclampsia by assessment of the patient's blood pressure, urine protein, laboratory studies, gestational age, & history of migraines prior to pregnancy
- Very often, a patient with migraines will also report that the headache does not feel like their normal headache

WORRISOME SIGNS THAT REQUIRE A COMPLETE NEUROLOGIC WORKUP

- Sudden onset of severe headache ("worst headache of my life")
- Worsening headaches / pain/pattern different from usual
- Headache related to exertion
- Headache with altered mental status, seizures, papilledema, changes in vision, stiff neck, focal neurological symptoms
- Headache unrelieved by pain medication
- New-onset migraine headaches
- Headache in immunosuppressed women

WORKUP OF CONCERNING HEADACHE

- MRI is preferred over CT during pregnancy
  - **MRI:** does not expose the fetus to ionizing radiation and not associated with adverse fetal effects
  - **CT:** ionizing radiation but fetal exposure is minimal during maternal head CT. Iodinated contrast materials can cross the placenta and produce transient effects on the developing fetal thyroid gland
- Lumbar Puncture: not contraindicated in pregnancy and should be performed following neuroimaging if increased intracranial pressure or infection is suspected
- Blood Pressure & HELLP Labs: if elevated BP after 20 weeks of gestation

MIGRAINE WITHOUT AURA

DIAGNOSTIC CRITERIA

- A: Headache that lasts 4 to 72 hrs
- B: ≥ 2 of the below characteristics:
  - Unilateral
  - Pulsating
  - Moderate or severe pain
  - Aggravation by or causing avoidance of routine physical activity
- C: During Headache ≥ 1 of:
  - Nausea, vomiting, or both
  - Photophobia and phonophobia

MIGRAINE WITH AURA

DIAGNOSTIC CRITERIA

- **25% of pts with migraine experience aura**
- ≥ 2 attacks fulfilling criterion B and C with ≥ 1 of the following auras:
  - Visual
  - Sensory
  - Speech and/or language
  - Motor
  - Brainstem
  - Retinal
- ≥ 3 of the following:
  - ≥ 1 aura symptom spreads gradually over ≥ 5 minutes
  - ≥ 2 symptoms occur in succession
  - Each individual aura symptom lasts 5 to 60 minutes
  - ≥ 1 aura symptom is unilateral
  - ≥ 1 aura symptom is positive
  - The aura is accompanied, or followed within 60 minutes, by a headache

MIGRAINE COURSE & OUTCOMES IN PREG

- 60-70% of women with a history of migraines report improvement over the course of pregnancy
- Most common time for recurrence is postpartum:
  - 34% recurred during the first week postpartum
  - 55% recurred during the first month postpartum
- Migraine has no effect on most pregnancy outcomes
  - Does not increase the risk of congenital anomalies
- Migraine, especially with aura, is associated with an increased risk of stroke, but the severity of risk is still under investigation

TREATMENT OF ACUTE MIGRAINE

#1 – ACETAMINOPHEN (Alone or in combination)

- Best maternal-fetal safety profile, 1000 mg q6h monotherapy
- Acetaminophen can be combined with either *codeine*, *metoclopramide*, or *butalbital-caffeine* if unresponsive to monotherapy

#2 – NSAIDs / ASPIRIN

- Safest in second trimester, however, should remain a short course
- 1st Trimester: associated with miscarriage, ventricular septal defect, gastroschisis
- 3rd Trimester: limit to <48 hours due to premature ductal closure, platelet inhibition, oligohydramnios

#3 – OPIOIDS / TRIPTANS

- Opioids are habit-forming, can worsen nausea/vomiting & constipation
- Maternal opioid addiction and neonatal withdrawal possible with chronic use
- Sumatriptan 100 mg PO considered for moderate to severe symptoms
- No increased risk of birth defects or miscarriage
- Theoretic possibility of vasoconstriction of uteroplacental vessels

TREATMENT OF MIGRAINE-ASSOCIATED NAUSEA/VOMITING

- **Meclizine:** H1 antagonist, 25 mg PO
- **Diphenhydramine:** H1 antagonist, 25 to 50 mg PO
- **Promethazine:** H1 antagonist, 12.5 to 25 mg IM or PO
- **Ondansetron:** 5HT3 antagonist, 4 to 8 mg PO
- Higher risk of causing acute dystonic reaction:
  - **Metoclopramide:** Dopamine antagonist, 10 mg IV, IM, or PO
  - **Chlorpromazine:** Dopamine antagonist, 25 to 50 mg IM
  - **Prochlorperazine:** Dopamine antagonist, 10 mg IV, IM, or PO

MIGRAINE PROPHYLAXIS

- **Beta-blockers (Propranolol, Metoprolol, Atenolol):** fetal/neonatal effects are rare
  - Mild fetal growth restriction, mild transient neonatal bradycardia, respiratory depression, hyperbilirubinemia, hypoglycemia
- **Calcium Channel Blockers (Verapamil):** commonly used in the 3rd trimester
- **Cyproheptadine:** antihistamine without known adverse pregnancy effects
- **Low Dose Antidepressants (SSRIs, SNRIs, TCAs):** consider for refractory migraine patients
- **Gabapentin:** anticonvulsant

MIGRAINE MEDICATIONS THAT ARE CONTRAINDICATED IN PREGANCY

- **Ergotamine:** potential to induce hypertonic uterine contractions and vasospasm/vasoconstriction
  - May be used in postpartum period
- **Isometheptene:** sympathomimetic amine sold in combination with dichloralphenazone and acetaminophen
  - No information on its use in pregnancy – could compromise uterine blood flow as other alpha adrenergic agents do

ADJUNCTIVE NON-PHARMACOLOGIC MODALITIES

IMPORTANT LINKS & REFERENCES

- Schurks M and Kurth T et al. "Migraine and cardiovascular disease: systemic review and meta-analysis." *BMJ* 2009 Oct 27; 339:b3914.
- UpToDate "Headache in pregnant and postpartum women," Dec 2019
- UpToDate "Pathophysiology, clinical manifestations, and diagnosis of migraine in adults," Dec 2019
- UpToDate "Headache, migraine, and stroke," Dec 2019
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