

# Headaches in the Pregnant Patient

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Headache disorders are highly prevalent throughout the world, and have a female predominance. More than 80% of women in the reproductive age group experience headache at some point, making it a common occurrence in pregnancy.<sup>1</sup> The International Headache Society broadly categorizes headaches as primary or secondary. As is the case in the non-pregnant population, primary headaches (such as migraine headaches, tension headaches and cluster headaches, chronic daily headaches or medication overuse headaches) account for majority of the cases of headache seen in pregnancy. Secondary headaches are headaches attributable to another underlying cause. Certain causes of secondary headaches deserve special consideration in pregnancy as they might be either unique to pregnancy or be exacerbated by physiologic changes of the gravid state.

*Case: A 22 y.o. gravida 1, at 28 wks. gestation presents for daily headaches which began after 16 weeks gestation. Headaches are present when she wakes up in the morning and tend to decrease but not resolve with acetaminophen. She has no prior h/o headaches and is otherwise healthy. Pertinent features in exam include a BMI of 37, BP 128/88 and a normal neurologic exam (including fundoscopy).*

## What is the differential diagnosis of new onset headache in the second half of pregnancy?

Pregnancy is associated with a physiologic increase in blood volume and vasodilatation, that peaks around 26–28 weeks gestation. Previously asymptomatic arteriovenous malformations (AVMs) or aneurysms can therefore present at this time with headaches or cerebrovascular accidents. Sinus headaches are also more frequently seen in pregnancy due to this increased vascularity and mucus production, resulting in sinus congestion. In patients presenting with prolonged debilitating headaches, worse with supine position, idiopathic intracranial hypertension (pseudotumor cerebri) is an important consideration. This condition is often encountered in pregnancy, since it is known to particularly affect obese women of childbearing age.<sup>2</sup> In patients with pituitary adenomas, particularly macroadenomas, tumor growth can occur with pregnancy progression,<sup>3</sup> and may present as headache. Pregnancy is a hypercoagulable state and although ischemic stroke is rare, cerebral vein thrombosis can be seen in pregnancy, particularly in the third trimester and postpartum period.<sup>4</sup> Finally, preeclampsia, which can complicate

5–10% of pregnancies, characterized by hypertension and proteinuria, can also present with headache. Preeclampsia headaches tend to be vascular in nature and often accompanied by visual disturbances.

## What investigations, if any, should be performed in this patient? What radiologic testing can be performed safely in pregnancy?

Common things being common, most patients who present with headaches in pregnancy have benign headaches and do not need investigations. However, some investigations might be necessary when ruling out secondary causes. Preeclampsia is a multisystem pregnancy-specific disorder characterized by hypertension and proteinuria. Clinical symptoms of preeclampsia include headache which can be present irrespective of high blood pressure. Other associated abnormalities include thrombocytopenia, liver and renal dysfunction and occasionally pulmonary edema. When considering preeclampsia in the differential, the following investigations are recommended; a complete blood count (looking for hemo-concentration and thrombocytopenia), liver enzymes (AST and ALT), creatinine and a urine protein to creatinine ratio looking for proteinuria.<sup>5</sup>

A CT scan can safely be performed with minimal radiation risk to the fetus, regardless of gestational age. Magnetic resonance imaging (MRI) carries no radiation risk and has been used in pregnancy without any documented adverse pregnancy outcomes.<sup>6</sup> An MRA and MRV should be considered when suspecting AVM's or cerebral vein thrombosis. Similarly, a lumbar puncture can be safely performed in pregnancy at any gestational age. Opening pressure is not affected by the gravid state.

*Case (continued): The patient did not have preeclampsia and was treated with acetaminophen and caffeine for symptomatic relief. She was also placed on metoprolol 12.5 mg po twice daily for prophylaxis and at a follow-up visit 4 weeks later reported improvement.*

## How are headaches best managed in pregnancy?

Although both patients and providers are wary of using medications during pregnancy, sometimes with severe or frequent disabling headaches, treatment becomes necessary. **Table 1** lists some medication that can be safely used for treatment of tension/migraine headaches in pregnancy.

**Table 1.** Headache Medications, and Their Use In Pregnancy

Class of meds	Use in pregnancy justifiable in most circumstances	Use in pregnancy justified in some circumstances	Comments
Medications for acute relief of headache	Acetaminophen Metoclopramide Promethazine Prochlorperazine Caffeine	Ibuprofen Butalbital Sumatriptan Opioids	Occasional use of NSAIDs, including ibuprofen, prior to 20 wks gestation is acceptable. Use during late pregnancy is avoided due to concerns about premature ductal closure. <sup>1</sup> Safety data for Sumatriptan in pregnancy is still evolving but available data is reassuring.
Medications for preventive therapy	Amitriptyline Nortriptyline Metoprolol Magnesium Verapamil		Propranolol and atenolol use in pregnancy may be associated with fetal growth restriction. <sup>1</sup> For most patients, the risk of antiepileptic medications for headache prevention in pregnancy outweighs the benefit.

<sup>1</sup> From Micromedex, accessed Mar 21, 2014

*Case (Conclusion): She returned at 37 wks. gestation with severe intractable headache, borderline hypertension and labs suggestive of preeclampsia. She was started on a magnesium sulfate drip and a decision was made to induce labor. On postpartum day 7, after an uneventful delivery, she returned with a severe persistent headache and generalized malaise. Slight weakness in the right leg was noted. An MRV showed right sagittal vein thrombosis. She was started on low molecular weight heparin and subsequently transitioned to oral anticoagulation, with planned treatment duration of 6 months.*

In summary, headaches are a common complaint in pregnancy, especially in the first half. Although common etiologies prevail, it is important to consider the “zebras” in diagnosis and perform an evaluation as indicated. Some causes of headache can cause substantial morbidity to mother and fetus if undiagnosed, therefore necessary radiologic testing should not be withheld. There are several treatment options available for a pregnant woman, and pregnancy should not preclude the institution of an appropriate regimen to help her remain relatively symptom free.

## References

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