

Headaches in Pregnancy – Let's think outside the box!



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85 different types of headaches.⁶ Primary headaches, being migraine and tension headaches account for 90% of headaches in pregnancy.^{1,4}

Secondary headaches are rarer. These include benign aetiologies such as caffeine withdrawal, iatrogenic hypotension, anaemia, idiopathic intracranial hypertension, post-dural taps; but can also be more ominous reasons such as stroke, cerebral venous thrombosis, intracerebral haemorrhage, pre-eclampsia, posterior reversible encephalopathy syndrome (PRES), meningitis or space occupying lesions.^{1,4}

Red flag features

A detailed history into the onset, duration, location, severity, frequency, associated symptoms, relationship to previous pregnancies and family history are helpful in distinguishing benign from more ominous causes of headaches. When assessing a patient with a headache in pregnancy, identifying red flag features to consider time-sensitive differential diagnoses is critical. A rapid onset of headache, presence of focal neurological signs, neck stiffness and an abnormal neurological examination are worrisome features warranting further imaging. Presence of pyrexia should also prompt suspicion of meningitis. Hypertension, proteinuria and clonus should prompt suspicion of pre-eclampsia, especially after 20 weeks of gestation.

Specific questions are important to determine the aetiology as treatment of secondary headaches such as stroke and intracerebral haemorrhage is time-sensitive: "What were you doing when your symptoms started? Where were you at the time? What did you first notice wrong? When were you last free of symptoms? Then what happened? Has this ever happened before?"

Headaches are a common presentation in pregnancy and in the general population. Although most headaches are benign, when assessing women presenting with headaches in pregnancy, one must not only think of aetiologies specific to pregnancy, but must also consider differential diagnoses unrelated to pregnancy. 90% of headaches in pregnancy are primary, being migraines and tension headaches.^{1,2} However, physiological changes such as the hypercoagulability in pregnancy, as well as pregnancy-specific disorders such as hyperemesis gravidarum, pre-eclampsia and eclampsia increase the risk of certain secondary headaches, including haemorrhagic and ischaemic strokes.³ A delay in diagnosis and treatment of these conditions may lead to significant morbidity and mortality.

The incidence of stroke in pregnancy is reported to be 30 per 100,000 pregnancies, which is three times the incidence in non-pregnant women between 15-44 years of age, with 90% of strokes occurring peri-partum or within 6 weeks post-partum.⁴ The UKOSS data from 2007 to 2010 reported an incidence of 1.5 per 100,000 deliveries, not including strokes occurring in the post-partum period.⁵ In the general population, the majority of strokes are ischemic in nature. However, in pregnancy, ischaemia, haemorrhage and venous thrombosis have similar representation.⁴ This difference is due to the younger age profile of women who present with stroke in pregnancy.⁴

Differential diagnoses

The International Classification of Headache Disorders classifies

Imaging

Patients who present with 'red flag features' should have brain imaging expedited. In pregnancy, MRI is preferable as this does not expose the pregnant women to radiation.⁷ However, as CT is generally more accessible, it is the most appropriate tool for rapid diagnosis of acute neurological conditions. The fetal radiation dose in a non-contrast CT of the brain is approximately 5% of the naturally occurring background radiation dose during a full-term pregnancy, and is further minimised by use of a standard shielding.⁸

CT angiogram can be performed safely in pregnancy with iodinated contrast. Because of the theoretical risk of fetal thyroid suppression, neonatal thyroid function should be monitored during the first 2 weeks of life.⁹ Gadolinium chelate to enhance MRI studies passes through the placenta; use of such should be done with caution.⁹

Time is brain

In strokes, catching the window of opportunity to prevent significant disability is vital. Recent studies have shown increasing evidence on the safety of imaging and use of more advanced treatment options in pregnancy.

Thrombolysis with recombinant tissue plasminogen activator administered within 4.5 hours of stroke onset significantly improves overall outcome.¹⁰ The use of thrombolysis in pregnancy has been reported in over 200 cases, which conclude that complication rates in pregnancy were comparable to those of the general population.^{11, 12}

Mechanical thrombectomy has only been reported in two publications, reporting four cases.

All four cases had good short-term and long-term outcomes, and continued pregnancies to term with no fetal complications.^{13, 14} However, thrombectomy is only appropriate in about 10% of cases with large vessel occlusion and can only be done in specialised centres.¹⁵ Benefits have been shown if performed within 6 hours of stroke onset, and up to 24 hours in highly selected cases.¹⁵

The mainstay of treatment for cerebral venous thrombosis would be that of anticoagulation with either low molecular weight heparin or unfractionated heparin. Evidence to support thrombolysis or thrombectomy here is lacking. Mannitol should be used in patients with signs of increased intracranial pressure, and surgical decompression should be considered in cases of impending herniation.¹⁶

With regards to intracerebral haemorrhage, the immediate treatment is towards achieving haemostasis and correction of coagulopathy. Aggressive blood pressure control is safe and can improve outcome. Thromboprophylaxis is also important, by means of intermittent pneumatic compression from the day of admission. Antiepileptics should be used in patients with clinical seizures. Surgical decompression should be considered in patients with deteriorating neurological function.¹⁷

Conclusion

Headaches are common. Common is common. However, when assessing the pregnant patient with a headache and neurological features, we must always think outside the box. Time is brain.

References available on request

