Centre for Sustainable Delivery

NHS SCOTLAND

Modernising Patient Pathways Programme:

Migraine during pregnancy and following childbirth

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Background

Primary Headache Disorders (e.g. Migraine, Tension Type Headache) are the most common headache disorders in pregnancy

Migraine commonly affects women of childbearing age

Migraine without aura tends to improve as pregnancy progresses but migraine with aura can persist

Women may develop aura for the first time in pregnancy. The aura may change and become more persistent

Migraine may change to migraine aura without headache

Women may present with headache for the first time during pregnancy.

Pathway recommendations

Pre-conception counselling

Patients of childbearing age who are on acute and / or prophylactic medication for the management of migraine should be warned about the potential for teratogenic effects and / or developmental delay and should be on appropriate contraception.

Patients should have pre-conception counselling so they can make informed choices. This can be undertaken both in primary and secondary care.

Where possible, medications should be withdrawn and non-drug therapies for migraine should be used prior to conception.

The following table gives advice on the safety of acute and preventative treatments during pregnancy.

Pre-conception Counselling		
Medications should be stopped prior to conception where possible. Where a woman makes an informed decision to continue with medication, use the lowest possible dose.		
		Pregnancy
Non-drug strategies	✅	Risk factor management: Avoid Triggers Avoid Medication Overuse Avoid Excessive Caffeine Early Treatment of Nausea
Sumatriptan	✅	Avoid Medication Overuse (limit use to 2 days/week)
Paracetamol	✅	Avoid Medication Overuse
Ibuprofen	✅	Avoid in third trimester
Amitriptyline	⚠	Widely used. No reports of limb deformities at low doses
Propranolol	⚠	Risk of neonatal bradycardia and hypoglycaemia in 3rd trimester.
Topiramate	❌	Risk of foetal malformation. Reduce by 25mg/week. Stop at least one week prior to conception. If unexpected pregnancy, reduce and stop as soon as possible.
Candesartan	❌	Risk of harm. Reduce by 4mg/week. Stop at least one week prior to conception.
Acetazolamide (for IIH)	❌	Risk of Teratogenicity. Stop prior to conception.
Magnesium Supplements	✅	Low dose oral supplementation
Indometacin	⚠	Not recommended in third trimester: use lowest does possible under direction of specialist if no alternatives available.
✅ Safe to use ⚠ Caution ❌ Ideally avoid, some cases may merit discussion with expert. Sodium valproate for headache is contraindicated in women of childbearing potential.		
Resources		BUMPS – Best Use of Medicines in Pregnancy NIH Drugs and Lactation Database (LactMed)

Investigation of Headache in Pregnancy

If red flags are identified in the history or examination, women should be referred urgently to secondary care for further assessment. For women in the third trimester, it is imperative to exclude pre-eclampsia as a cause for new unremitting headache.

Safety of Investigations for Headache in Pregnancy		
CT Brain (with or without contrast)	☑	The risk of neonatal thyroid dysfunction with iodinated contrast not proven in vivo. Suitable abdominal protection advised.
Non-Contrast MRI	☑	Safe.
Lumbar Puncture	☑	Safe where brain imaging allows.
Note: Women in the puerperium should be investigated as for the non-pregnant population.		

RED FLAGS

Most patients do not have serious secondary headache. Red flags indicate the need for urgent assessment to exclude a secondary cause. The most consistent indicators for serious secondary causes for headache are:

1) Thunderclap (sudden onset) headache (consider SAH and its differential)
2) New focal neurological deficit on examination (e.g. hemiparesis)
3) Systemic features (considering GCA, infection such as meningitis or encephalitis, etc)

AMBER FLAGS

Features that may indicate a secondary cause but may also be seen in primary headaches:

1) Changes in headache intensity with changes of posture (upright consider low pressure / headache when lying flat consider high pressure e.g. cerebral venous sinus thrombosis)
2) Worsening/Triggering headache with Valsalva (e.g. coughing, straining)
3) Atypical aura (duration >1 hour or including motor weakness)
4) Progressive headache (worsening over weeks or longer)
5) Head trauma within the last month
6) Previous history of cancer or HIV
7) Re-attendance to A&E or GP surgery with progressively worsening headache severity or frequency

A standard examination in a patient with headache should include blood pressure, fundoscopy and a brief neurological examination looking for new focal neurological deficit.

Acute treatments in pregnancy and lactation

Acute Treatments for Migraine During Pregnancy					
		Pregnancy		Lactation	
Painkillers	Paracetamol	✓	Safe	✓	Safe
	Aspirin	✗	Avoid Treatment doses.	✗	Avoid in breast feeding.
	Ibuprofen	✓	Avoid from 28 weeks	✓	Safe in Lactation
	Codeine	✓	Safe: not recommended first line	✗	Potential adverse events in the infant.
Anti-Emetic	Metoclopramide Prochlorperazine	✓	Used widely	✓	Used widely
Triptans	Sumatriptan	✓	Safe	✓	Safe
	Other Triptans	✗	Insufficient safety data	✗	Insufficient safety data
For all acute treatments, use should be limited to no more than 2 days per week to prevent development of Medication Overuse Headache.					
Resources	BUMPS – Best Use of Medicines in Pregnancy NIH Drugs and Lactation Database (LactMed)				

Paracetamol is commonly used in all stages of pregnancy and is considered safe for occasional use. Regular paracetamol (regular use for several weeks or longer) use has been weakly associated with neurodevelopmental abnormalities. Paracetamol is excreted in low quantities in breast milk but is considered safe.

Aspirin at high doses (above 150mg) should be avoided both in pregnancy and lactation due to the risk to the infant. Low doses of aspirin (up to 150mg per day) have been shown to be safe.

Ibuprofen is safe in the first and second trimester, but is associated with premature closure of the ductus arteriosus in later stages of pregnancy. There is also evidence to show adverse effects on labour in humans. Ibuprofen is excreted into breast milk but has not been associated with a high risk of complications and is considered safe.

Codeine is safe in pregnancy but should not be used first line due to its adverse effects on the mother. Regular use should be avoided due to the risk of dependency in the infant. Chronic use has been shown to lead to medication overuse headache. Due to the risk of dependency/opioid effects in the infant, codeine use is not recommended in lactation.

Antiemetic medications have been widely used in pregnancy and are considered safe.

Registry data has informed on the use of sumatriptan in pregnancy. A meta-analysis of triptans at all stages of pregnancy failed to show a link between triptan use and major congenital malformation or prematurity. Sumatriptan may be considered in any stage of pregnancy where treatment with paracetamol or ibuprofen fails or is contra-indicated.

Preventative therapies in pregnancy and lactation (see attached)

Preventative Therapies for Migraine During Pregnancy

Most migraine improves during after the first trimester and therefore preventative therapies should be avoided where possible. Use lowest effective dose and withdraw in the last weeks of pregnancy
Lifestyle factors should be addressed prior to starting medication.

	Max. Dose	Pregnancy		Lactation
Amitriptyline	50mg/day	☑	Widely used	☒	Avoid in Premature/New-born
Propranolol	20mg twice a day	☑	Risk of foetal bradycardia and hypoglycaemia in 3rd trimester.	☑	Probably Safe
Topiramate	AVOID	☒	Risk of foetal malformation	☒	Limited data, potential toxicity
Candesartan	AVOID	☒	Risk of harm	☒	Insufficient data
Non- standard therapies that may be considered in pregnancy.					
Low Dose Aspirin	75-150mg / day	☑	Safe	☑	Use with caution: chance of excretion
GON Blocks (methylprednisolone)		☑	Avoid steroids in first trimester: otherwise considered safe. Can be used as lidocaine alone.	☑	Limited data; considered safe
Magnesium Supplements	200mg/day	☑	No evidence of harm at low doses	☑	Considered safe at low doses.
Resources	BUMPS – Best Use of Medicines in Pregnancy NIH Drugs and Lactation Database (LactMed)				

Medication overuse, excessive caffeine intake, psychiatric co-morbidity, pain, sleep disturbance and nausea should be adequately addressed prior to starting preventative therapies. Relaxation strategies and regular exercise should be explored.

Amitriptyline is widely used in pregnancy and is considered safe although there has been occasional reports of amitriptyline and congenital malformations, this is not reproduced in the bulk of available evidence.

Propranolol has wide use in pregnancy. Propranolol may cause intrauterine growth restriction (IUGR). Use in the third trimester has been associated with foetal bradycardia and hypoglycaemia. Small amounts are excreted into breast milk but no adverse effects have been reported.

Exposure to topiramate has an increased risk of oral cleft development in infants (OR 6.2, 95% CI 3.13 to 12.51). Children exposed to topiramate in utero are at high risk of serious developmental disorders (HR 3.53, 95% CI 1.42 to 8.74 for risk of developing intellectual disability, and HR 2.73, 95% CI 1.34 to 5.57 for autism spectrum disorder). It should not be used by women who are breast feeding as it can be present in breast milk. Patients who are using topiramate and who may become pregnant should therefore use highly-effective contraception. Advice on contraception is available from the Royal College of the Obstetricians and Gynaecologists Faculty of Sexual and Reproductive Healthcare, https://www.fsrh.org/standards-and-guidance/fsrh-guidelines-and-statements/.

Candesartan may cause complications in pregnancy (teratogenicity, oligohydramnios, IUGR) and should be avoided in pregnancy. No reports describing the use of candesartan in breastfeeding have been found but excretion into human breast milk is expected. There is insufficient data to conclude safety in breast feeding.

The use of methylprednisolone for Greater Occipital Nerve (GON) blocks is usually considered safe however available data are limited. Steroid use early in pregnancy may cause developmental abnormalities but the risk with local administration is less clear. The risk versus benefit of treatment should be assessed and discussed with each patient prior to administration.

Magnesium supplementation would appear compatible with breastfeeding, although if taken during pregnancy it might delay the onset of lactation. No special precautions are advised. There are no licensed magnesium products for use in pregnancy. The available evidence suggests that magnesium is not associated with congenital defects based on a large number of reports. No special precautions are advised in relation to magnesium use in breastfeeding.

Sodium Valproate is contra-indicated in women of childbearing age due the increased risk of foetal malformation and poorer cognitive outcomes of children exposed to valproate in utero. Sources of further advice on the prescription of sodium valproate in women who have the potential to become pregnant is available from the MHRA and in Sign155.

Toolkit on the risks of valproate medicines in female patients:

www.gov.uk/government/publications/toolkit-on-the-risks-of-valproate-medicines-in-female-patients

This website provides guidance for healthcare professionals and patients on prescribing and dispensing valproate.

There is limited evidence for the safety of Botulinum Toxin A in pregnant or lactating women. Whilst the risk is likely to be low, treatment using Botox is not recommended in pregnant and lactating women. Practice varies between headache centres varies and some centres do use Botulinum Toxin A in selected patients who are pregnant or lactating. Before considering Botox in pregnancy or lactation the clinician should fully discuss the uncertainty and the potential risks with the patient, written consent should be obtained and the patient should be entered on a pregnancy registry.

References and further resources

SIGN 155 Pharmacological management of migraine – updated March 2023; includes clinician and patient guidelines

url: Pharmacological management of migraine (sign.ac.uk)

BUMPS – Best Use of Medicines in Pregnancy

https://www.medicinesinpregnancy.org

National Maternity Network. Management of Headache in Pregnancy
Guidance developed by Scottish Government 'Best Start' Obstetric Neurology Working Group
2023-02-21-Headache-in-Pregnancy.pdf (perinatalnetwork.scot)

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