Epilepsy and Pregnancy

University Hospitals of Leicester NHS Trust

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Contents

1. Introduction and Who Guideline applies to

This guideline is aimed at all Health Care Professionals involved in the care of women with Epilepsy (pre-conceptual care / pregnancy / postnatal care).
Epilepsy is a serious medical condition which can be life-threatening when not managed appropriately. All women with epilepsy should be cared for antenatally by doctors competent in the management of epilepsy. They should advise on the choice and dose of Antiepilepsy Drugs (AEDs), taking into consideration the risk to the fetus and maternal seizure control.

2. Guideline Standards and Procedures

2.1 Preconceptual care

- All women with epilepsy should be advised to take folic acid 5mg daily for at least three months prior to conception and to continue the intake until at least the end of the first trimester to reduce the incidence of major congenital malformation.[1]

- Women should be on the lowest effective dose of the most appropriate medication. In women taking Sodium Valproate or other AED polytherapy, there should be a detailed discussion on the risks and benefits of continuing or changing the AED prior to planning pregnancy. The aim should be to avoid sodium valproate and AED polytherapy where possible. However, if by doing so the risk of maternal seizures is deemed to be too high, they may need to continue on the same.

- Changes to medications should be made based on advice from an epilepsy specialist and after careful consideration of the potential risks and benefits.

- The risk of major congenital malformation to the fetus is dependent on the type, number and dose of AEDs. Levetiracetam has the least risk of major congenital malformation in the offspring (0.7%) followed by lamotrigine and carbamazepine monotherapy at lower doses have the least risk of major congenital malformation in the offspring.[2] The tables below show the risk of major malformations with different medications.[3]

Table 1: Medication dose and risk of major congenital malformation

Epilepsy medicine	Daily dose	Approximate risk
Carbamazepine	Any	4 to 5 in 100
Lamotrigine	Any	2 to 3 in 100
Levetiracetam	Any	0.5 to 1 in 100
Topiramate	Any	4 - 5 in 100
Sodium valproate	below 1,000 mg	6 in 100
Sodium valproate	above 1,000 mg	10 in 100

Epilepsy medicine combination	Approximate risk
Any combination without sodium valproate	4 in 100
Sodium valproate with any other epilepsy medicine	9 in 100

- Women should be provided with written information on pregnancy with epilepsy. [4]

2.2 Antenatal

- Approximately 30% of women with epilepsy experience an increase in seizure frequency in pregnancy; 60% have no change and about 10% have a decrease in seizure frequency. Generally, the fewer the number of seizures in the 12 months before conception, the lower the risk of increased seizure frequency in pregnancy.

- Possible reasons for a pregnancy-related increase in seizure activity include:
    - Non-compliance with medication – either due to reluctance to accept the diagnosis of epilepsy or fear of causing harm to their baby (see also SUDEP, below)
    - Sleep deprivation
    - Alteration in antiepileptic drug pharmacokinetics – decreased protein binding (phenytoin, carbamazepine, valproate), increased liver metabolism (phenytoin, phenobarbitone, primidone, carbemazepine, topiramate), increased drug clearance (lamotrigine)
    - Weight gain
    - Hyperemesis gravidarum.

- Those women not already taking folic acid 5mg/day should be prescribed it for the remainder of the first trimester.[1]

- Shared care is appropriate for the vast majority of women with epilepsy. Women who have an additional obstetric / medical issue can be seen in the alongside Friday morning obstetric maternal medicine clinic. This referral should occur at booking.

- Women identified as requiring specialist midwife/nurse and obstetric input for epilepsy, referral to the specialist clinic must be made within two weeks of booking.

- For those women who need review after booking then referral to the epilepsy team via email epicare@uhl-tr.nhs.uk is indicated, where they will be under the care of a specialist midwife in maternal medicine and an epilepsy specialist nurse, with indirect maternal medicine consultant support

- Even if booked for care at the LRI they will be seen in the joint obstetric epilepsy clinic at the LGH.

- Women on Sodium Valproate should be offered an additional ultrasound scan at 16 weeks to exclude neural tube defects.

- All women with epilepsy should be encouraged to have a detailed ultrasound scan performed between 18^{+0} and 20^{+6} weeks, in line with the National Health Service Fetal Anomaly screening programme.

- Women exposed to AED's should have serial growth scans for detection of small for gestational age babies.

- Measurement of plasma drug levels for most anti-convulsants during pregnancy is rarely indicated, other than to check compliance. It is usually more appropriate to adjust dosages on clinical grounds, after compliance has been confirmed[5,6]**.** Adjustments to regimes without confirming compliance may result in toxicity. There is no clear-cut relationship between plasma anticonvulsant levels and seizure control for the majority of anti-convulsants. The exception to this would seem to be lamotrigine (as the drug levels of lamotrigine falls in every trimester) Many women require increased dosages of this agent during pregnancy, and in the absence of pro-dromal symptoms it may be appropriate to monitor lamotrigine levels (once in every trimester or depending on frequency of seizures) on a 4 weekly basis and adjust dosages accordingly.

- There is insufficient evidence to recommend routine maternal use of oral Vitamin K in those on enzyme inducing AEDs to prevent haemorrhagic disease of the newborn[7,8] or to prevent postpartum haemorrhage[3].

- There is no evidence to support the use of a higher dose of dexamethasone in women using enzyme inducing agents.

- All women should be encouraged to notify their pregnancy or allow their obstetrician to notify their pregnancy with the UK Epilepsy and Pregnancy register.[9]

- Women should be encouraged to comply with their medications throughout pregnancy, as this will be the safest option for both them and the fetus overall. If they

have difficulty due to nausea or vomiting, or any other reason, they should inform the team caring for them as a matter of urgency.

- There should be a conversation in the antenatal period regarding how the woman wishes to feed her baby. Breastfeeding should be supported and women taking AEDs should have an antenatal plan made regarding choice of AEDs and suitability with breastfeeding. Clinicians will find additional medicines information support via www.midlandsmedicines.nhs.uk & www.sps.nhs.uk to look for guidance and safety for medications whilst breastfeeding.

2.3 Labour & Delivery

- The diagnosis of epilepsy on its own is not an indication for Caesarean Section or Induction of Labour [3].

- Those with significant deterioration of seizures will need an individualised plan of care

- The overall risk of seizures during labour remains low however it is recommended women with epilepsy deliver on a labour ward in a consultant-led maternity unit. Delivery within the birth centre may be considered for women whose seizures are well–controlled provided that full resuscitation facilities are available.

- Water birth should only be considered antenatally if the woman is not requiring AEDs, has been seizure free for a long period of time and after discussion with an epilepsy specialist.

- The woman's normal anticonvulsant regime should be administered in order to reduce the risk of seizures during labour. If not tolerated orally, AEDs may be given parenterally.

- Seizures in labour should be terminated (controlled) as soon as possible. Left lateral tilt should be established alongside maintenance of the airway and oxygenation at all times.

- Benzodiazepines are the drug of choice in status epilepticus.
    - For patients with IV access, Lorazepam IV 0.1mg/kg (usually 4mg bolus, with a further dose after 10-20 minutes) is preferred. Diazepam 5-10mg slowly IV is an alternative.
    - If there is no IV access. Diazepam 10-20mg PR repeated once 15 minutes later if continued risk of status epilepticus. Midazolam 10mg buccal is also suitable.

- Repeated seizures during labour put the fetus at risk of hypoxia and caesarean section should be considered to expedite the delivery of the fetus.

- If the woman remains seizure-free during labour, then she should be managed as any other labouring woman. However care should be taken to avoid exhaustion and dehydration, as both of these can trigger seizures in some women.

- Pain relief should be prioritised in women with epilepsy.
    - TENS, Entonox and regional analgesia are all safe[10].

- Pethidine should be avoided, and diamorphine should be used in preference[11,12].

- Intermittent auscultation is appropriate for the majority of these women. Continuous electronic fetal monitoring is recommended in women at high risk of a seizure in labour (for example someone who has had seizures antenatally) and also any woman who has had an intrapartum seizure.(or other obstetric indication)

- Women treated with enzyme-inducing AEDs should be offered Vitamin K 1mg intramuscularly for their babies at birth.

2.4 Postnatal care

The risk of seizures is highest in the peripartum period: 1–2% of women with epilepsy will have a seizure in labour and a further 1–2% will have a seizure within 24 hours of delivery.

- Breast-feeding should be encouraged for all women with epilepsy. The babies should be monitored for adverse effects, withdrawal symptoms and signs of toxicity – particularly if preterm[13].

- Women taking AEDs should have an antenatal plan made regarding suitability of their AEDs with breastfeeding as outlined in the antenatal section above.

- Women with epilepsy should be given appropriate advice and support regarding suitable settings for feeding and other aspects of infant care in order to minimise danger to the infant should a maternal seizure occur.

- Epilepsy Action recommend the following to women with Newborn babies:

    - If possible, share the night feeds – for some women, lack of sleep can trigger seizures
    - When feeding, sit on the floor surrounded by cushions if possible
    - Never bathe the baby alone
    - Use a car seat when carrying the baby up or down stairs.
    - Other local support services may be available; Epilepsy Action Website has information regarding local support.

- Post-partum care should include review of anticonvulsant regimen within 10 days of delivery if the dose was changed in pregnancy. This is to avoid toxicity[14,15].

- Healthcare workers should be aware that these patients are at a much higher risk of depressive disorders in the puerperium. The patients should also be made aware of symptoms to look for and report[16].

2.5 Contraception

- Women should be given advice about appropriate contraception, and preconceptual care for the next pregnancy.
- Copper IUDs, the levonorgestrel-releasing IUS and medroxyprogesterone acetate injections should be promoted as reliable methods of contraception that are not affected by enzyme inducing AEDs[3].

- Enzyme-inducing AEDss (phenytoin, primidone, carbamazepine, phenobarbital, topiramate, oxycarbazepine) may reduce the contraceptive efficacy of hormonal contraceptive methods including the combined oral contraceptive pills, progestogen-only pills and progestogen-only implants[3].

- If combined contraceptive use is deemed necessary, a higher dose is recommended (increasing the oestrogen component to 50 micrograms) with advice to tricycle packets and reduce the pill-free interval to 4 days.

- Women taking enzyme inducing AEDs should be informed that a copper IUD is the preferred choice for emergency contraception[3].

- Lamotrigine levels can be reduced up to 50% by use of combined oral contraceptive pill. The progestogen-only implants, the levonorgestrel-releasing intrauterine system (LNG-IUS), medroxyprogesterone acetate injections and the oral progestogen-only pill (POP) are suitable options with no change to lamotrigine levels expected and no established concerns about reduced contraceptive efficacy.

3. Education and Training

None

4. Monitoring Compliance

What will be measured to monitor compliance	How will compliance be monitored	Monitoring Lead	Frequency	Reporting arrangements
Women with Epilepsy (WWE) have a named consultant	Audit	Maternal Medicine Team	Annually	Clinical Audit Team
WWE are seen within 2 weeks of booking appointment	Audit	Maternal Medicine Team	Annually	Clinical Audit Team
WWE are provided with both written and verbal information on AEDs and the risks of epilepsy in pregnancy to include SUDEP	Audit	Maternal Medicine Team	Annually	Clinical Audit Team
WWE are offered preconception counselling	Audit	Maternal Medicine Team	Annually	Clinical Audit Team
WWE are provided with contact details for the Epilepsy Team	Audit	Maternal Medicine Team	Annually	Clinical Audit Team

5. Supporting References

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6. Key Words

Epilepsy, Pregnancy, Seizures

The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs.
As part of its development, this policy and its impact on equality have been reviewed and no detriment was identified.

Development and approval record for this document		
Author / Lead Officer:	Original Working Party - Obstetricians	**Executive lead:** **Chief Nurse**
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REVIEW RECORD			
Date	**Issue Number**	**Reviewed By**	**Description Of Changes (If Any)**
7.14	V2	As above	
5.17	V2	As above	No change to practice
October 2020	V3	R Saxena, M Khare and G Verma	Epilepsy medicine risks updated. Statistics added in around antenatal seizures with possible reasons. Labour and delivery updated - Epilepsy is not an indication for caesarean section or induction of labour. Postnatal statistics updated and epilepsy action recommendations added in. Contraception recommendation added in.
April 2022	V4	E Breslin Z Barrett	Update the referral pathway including, who by, where and when the women will be seen by the specialists during the A/N period. Added reference and useful contact numbers/websites to aid the discussion of breastfeeding on AED's