HEALTH HOLDING
HAFER ALBATIN HEALTH CLUSTER
MATERNITY AND CHILDREN HOSPITAL

Department:	Obstetrics and Gynecology (L&D)		
Document:	Departmental Policy and Procedure		
Title:	Epilepsy in Laboring Women		
Applies To:	All Obstetrics and Gynecology Staff		
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1. PURPOSE:

1.1 To provide recommendations on the care of epileptic women during the pregnancy, i.e. antepartum, intrapartum and postpartum periods.
1.2 To take care of epileptic women who are pregnant or are considering pregnancy.

2. DEFINITIONS:

2.1 **Epilepsy**– is defined as a neurological disorder that involves recurrent seizure.

3. POLICY:

3.1 Continue oral anticonvulsants in labor.
3.2 Ensure intravenous access in labor.
3.3 If the mother is using antiepileptic drugs that are associated with drowsiness, monitor the breast feeding newborn for prolonged sedation, disinterest in feeding and inadequate weight gain.
3.4 Offer advice to women at risk of further seizure activity; to minimize any injury risk to fetal.

4. PROCEDURE:

4.1 Check the sub therapeutic levels of anticonvulsants.
4.2 Low threshold for seizures.
4.3 Changes in pregnancy such as nausea, vomiting, reduced gastric motility, use of antacids, plasma volume expansion, increased glomerular filtration, increased drug metabolism by placental enzymes, all of these affect absorption. The changes in metabolism and clearance of anticonvulsants drug reduces the plasma levels of drugs and causes increased frequency of seizure. Threshold for seizures is also affected by sleep deprivation and hyperventilation during labor.
4.4 Maternal Effects:
  4.4.1 Increase seizure frequency.
  4.4.2 Increased drug requirement.
  4.4.3 Coagulopathy because antiepileptic drugs affect synthesis of vitamin K dependent clotting factors.
4.5 Fetal effects:
  4.5.1 Congenital malformations (because of antiepileptic drugs).
  4.5.2 Impairment of cognitive functions in neonates (especially because of valproate).
  4.5.3 Fetal risks of epilepsy are 4% if either parent is affected and if both parents are affected then risk is 15-20% and if previous fetal is affected then risk is increased 10 times.
  4.5.4 Fetal bradycardia during and after fit.
  4.5.5 The risk of complications in patients on anti – epileptic medication is three times that of the non – epileptic population. The fetal are also at increased risk of developing hemorragic disease of the newborn and abstinence syndrome. Pregnancy is associated with an increase in the frequency of seizures and altered metabolism of anti – epileptic drugs.

4.6 History:

Epilepsy is classified according to the clinical types of seizure of specific EEG features.
These may be broadly divided into:

4.6.1 Primary generalized epilepsy (including tonic clonic seizure, absences and myoclonic jerks.

4.6.2 Partial (focal) seizures with or without loss of consciousness.

4.6.3 Temporal lobe seizures, which are a form of partial seizures.

4.6.4 Partial seizures originate in located lobe of brain and affect localized area of neurological function which may be motor or sensory. Consciousness is not lost and recovery is rapid. These may become secondarily generalized and produce loss of consciousness and generalized convulsions.

4.6.5 Generalized seizures involve both hemispheres of the brain simultaneously and may be preceded by an aura before and abrupt loss of consciousness.

4.6.6 In grand mal seizures, loss of consciousness is followed by tonic contraction of the muscles and rigid posturing and then by clonic contractions of all extremities while the muscles gradually relax. Loss of bowel or bladder control is common. Return to consciousness is gradual and the patient may be confused and disoriented for some time.

In petit mal seizures, there is a very brief loss of consciousness without muscle activity, with immediate recovery of consciousness and orientation.

Differential diagnosis:

4.6.6.1 Eclampsia.

4.6.6.2 Brain tumors.

4.6.6.3 Trauma.

4.6.6.4 Alcohol and other drug induced withdrawal.

4.6.6.5 Biochemical abnormalities.

4.7 Clinical Examination

4.7.1 May be unremarkable, depending upon history or patient is coming in attack.

4.8 Investigations

4.8.1 Routine investigations (Complete Blood Count, Blood Group and Rhesus factor, Liver Function Tests, Renal Function Tests, Random Blood Sugar, Urine routine examination, serum electrolytes.

4.8.2 Arterial blood gases.

4.8.3 General investigations to rule out other causes of convulsions.

4.8.4 Ultrasound for congenital anomalies and fetal growth scan.

4.8.5 Serum drug levels to maintain therapeutic level.

4.8.6 EEG can be performed safely in pregnancy.

4.8.7 CT scan brain and MRI can be performed safely in pregnancy if required.

4.9 Management:

4.9.1 Pre-pregnancy Management:

4.9.1.1 Check clinical control and serum levels of drugs.

4.9.1.2 Use drug with minimal teratogenicity.

4.9.1.3 Control the disease with minimal possible dose to prevent fits and with single agent. Ideally the dose of Antiepileptic drug should be established in pre-pregnancy period.

4.9.1.4 Counselling of women regarding possible complications of the disease on pregnancy.

4.9.1.5 Folic acid 5mg intake for 3 months before pregnancy and throughout the pregnancy.

4.9.1.6 Referral to neurologist for assessment and also to decide about withdrawal of anti-epileptic drugs especially for those who are fit free for at least 2 years.

4.9.1.7 Avoid valproate in women of child bearing age.

4.9.1.8 There should be delay in pregnancy till epilepsy is well controlled as the effect of pregnancy on epilepsy on can be inferred from frequency of seizures in 9 months before pregnancy.

4.9.2 Antenatal Management:

4.9.2.1 Aim is to keep the women seizure free by monitoring the drug levels in each trimester and in last month.

4.9.2.2 Folic acid intake 5mg throughout the pregnancy.

4.9.2.3 Maternal serum alpha – feto – protein at 16-18 weeks to rule out neural tube defects.

4.9.2.4 Anomalies scan at 18-20 weeks.

4.9.2.5 Fetal echo at 22 weeks to rule out cardiac defects.
4.9.2.6 Vitamin K 10-20mg orally daily from 36 weeks onward to reduce the risk of deficiency of vitamin K dependent clotting factors.
4.9.2.7 If seizures occur during pregnancy then treat it with intravenous benzodiazepines.

4.9.3 Labor and Delivery:
4.9.3.1 Risk of seizures increases during labor so it should be closely monitored.
4.9.3.2 If seizures occur during labor it should be managed by intravenous benzodiazepines or rectal diazepam 5-10mg can be used in absence of intravenous access in emergency.
4.9.3.3 Fetal bradycardia is common during and after fit so close fetal monitoring is required to early diagnose the fetal distress.

4.9.4 Post-partum management:
4.9.4.1 1st day of postpartum may be complicated by tonic fits so patient should be kept under observation.
4.9.4.2 Give vitamin K to neonate.
4.9.4.3 Examination of neonate by pediatrician.
4.9.4.4 Avoid Phenobarbital because it causes sedation of neonate and neonatal withdrawal symptoms on weaning.
4.9.4.5 Advice mother not to drive and give bath to baby.
4.9.4.6 Contraception barrier methods are safe, intrauterine contraceptive devices can be used, avoid combined oral contraceptive pills because these have high failure rate because anti-epileptic drugs are hepatic enzyme inducers, so if combined oral contraceptive pills are to be used then use high dose estrogen formulations.
4.9.4.7 Breast feeding should be encouraged because very small amount of drug is secreted in breast milk and it also facilitates controlled neonatal withdrawal.

4.10 STATUS EPILEPTICUS:

4.10.1 Status epilepticus is defined as ongoing seizure activity lasting more than 30 minutes or recurrent seizures without full recovery of consciousness between episodes.

4.10.2 This complicates from less than 1% to 2.5% of pregnancies in women with epilepsy.

4.10.3 Status epilepticus represents a medical emergency. Predisposing factors include poor compliance with antiepileptic drugs, CNS infections, trauma, and illicit drug use.

4.10.4 During the tonic phase, contractions of the respiratory muscles impair adequate maternal oxygenation, leading to fetal hypoxia. During convulsive phase, metabolic acidosis ensues; rhabdomyolysis occur and can lead to acute renal failure.

4.10.5 After 30 minutes of continuous brain electrical activity, irreversible neuronal injury can occur. Trauma from recurrent seizure activity can result in Preterm labor, rupture of membranes, abruption and fetal death.

4.10.5.1 Management:
4.10.5.1 A patent airway must be secured.
4.10.5.2 Supplemental oxygenation given.
4.10.5.3 Hypotension should be avoided to prevent decrease cerebral perfusion pressure.
4.10.5.4 Intravenous benzodiazepines are used acutely.
4.10.5.5 Lorazepam if available is the drug of choice. It is given 2 mg boluses every 5 minutes.
4.10.5.6 Simultaneously, the patient is loaded with Phenytoin; 18mg/kg administered at a rate not exceeding 50mg/min. IV valproic acid (20mg/kg) is an alternative.
4.10.5.7 The combination of phenytoin and benzodiazepines is effective in controlling 75-85% of status epilepticus patient.
4.10.5.8 In those with persistent seizures, higher levels of phenytoin can be achieved with an additional 5mg/kg.

4.10.5.9 In such cases elective intubation is required to protect airway.
4.10.5.10 Continuous EEG monitoring should be initiated.

4.11 Drugs used for control of epilepsy and their maternal, fetal and neonatal side effects:

4.11.1

Medication	Maternal Effects	Fetal/Neonatal Effects
Carbamazepine (Tegretol) Use: for tonic, clonic an focal fits Dose: 10-20 mg/kg	• Drowsiness • Leucopenia • Ataxia • Mild Hepatotoxicity	• Facial dysmorphisms • Neural tube defects • Hypoplasia of distal phalanges
Phenytoin (Epanutin) Use: in myoclonic seizures Dose: 4-8 mg/kg	• Nystagmus • Ataxia • Hirsutism • Gingival hyperplasia • Megaloblasticanemia	• Facial clefting • Hypoplasia of distal phalanges • Neonatal coagulopathy
Vaproic Acid (Depakin) Use: in myoclonic, absence seizures and other forms. Dose: 20-50 mg/kg	• Ataxia, drowsiness • Alopecia • Hepatotoxicity • Thrombocytopenia	• Facial dysmorphisms • Neural tube defects

5. MATERIALS AND EQUIPMENT:

5.1 USG
5.2 CTG

6. RESPONSIBILITIES:

6.1 Physician
6.2 Nurse
6.3 Midwife

7. APPENDICES:

N/A

8. REFERENCES:

8.1 MCH Al Jouf Policy and Procedure
8.2 https://www.sahealth.sa.gov.au/wps/wcm/connect/216779804ee459ccb98cbdd150ce4f37/Epilepsy+and+Pregnancy+Management_PPG_v4_1.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-216779804ee459ccb98cbdd150ce4f37-mxUc6oK

9. APPROVALS:

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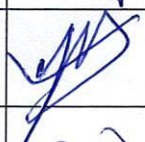
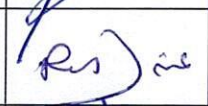
Reviewed by:	Dr. Mohannad Yaghmour	Head of the Department		January 12, 2025
Reviewed by:	Mr. Sabah Turayhib Al Harbi	Director of Nursing		January 13, 2025
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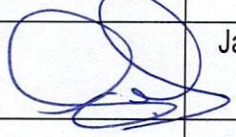
Reviewed by:	Mr. Abdullah Ayed Al Mutairi	QM&PS Director		January 15, 2025
Approved by:	Mr. Fahad Hezam AlShammari	Hospital Director		January 22, 2025