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Algorithm for Management of Epilepsy During Pregnancy

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Counseling

Ideally management starts in pre-conception period and women should ideally have a planned pregnancy with *pre-conceptional counseling.*

Optimization of antiepileptic treatment

- Changes in treatment should be made in preconception period
  - ❖ to eliminate the need to stop abruptly or to switch AEDs during pregnancy.
- Seizure freedom for at least 9 months prior to pregnancy has a high rate (84%–92%) of remaining seizure-free during pregnancy (Level B).

Goals of antiepileptic therapy are:

- Monotherapy in the lowest dose
- If possible, avoidance of valproate and polytherapy during the first trimester (to decrease risk of major **congenital** malformations (Level B); and throughout pregnancy to prevent reduced **cognitive** outcomes (Level B).
- If possible, avoidance of phenytoin and phenobarbital during pregnancy to prevent reduced cognitive outcomes (Level C).
- Preferable drugs during pregnancy are levatiracetam, Lamotrigine among 2nd generation and carbamazepine in 1st generation AEDs.

If patient comes during pregnancy

Counseling:(ideally in pre-conceptional period) regarding:

- Need for periconceptional folic acid intake, 5 mg/day to reduce the risk of major congenital malformations (Level C)
- Reassurance that majority of pregnancies proceed without difficulties
- Need for optimization of antiepileptic drugs (AED) or change of drugs before planning pregnancy
- Effect of pregnancy on the disease and effect of epilepsy on pregnancy
- Risk of congenital malformations in the fetus with AEDs
- Genetic predisposition of epilepsy and risk of occurrence in the fetus
- Instruct the woman to report her pregnancy to the AED- prescribing physician as soon as it is confirmed.
- Take AED serum concentrations as reference values if possible
- Need for effective contraception after pregnancy

Effect of pregnancy on the disease:
Pregnancy has variable effect on seizure frequency

- ➢ 50% have no effect in frequency
- ➢ 25% have decreased frequency
- ➢ 25% have increased frequency due to physiological changes in pregnancy affecting distribution, availability and metabolism of the drugs, overall resulting in decreased unbound drug
- ➢ 1-2% patients have seizures during labour as poor absorption during labour results in sub-therapeutic drug levels
- ➢ 1-2% patients develop seizures within 24 hours postpartum because of stress and sleep deprivation

Effect of disease on the pregnancy:

- ➢ Majority proceed without difficulty
- ➢ Trauma during fits may lead to abruption, preterm labour or fetal bradycardia
- ➢ AEDs increase the risk of congenital malformations in fetus by 2 folds(4-6%) in patients on monotherapy and by 3 folds(6-10%)in polytherapy
- ➢ Risk of seizure disorders in the offspring
- ➢ Delay in neurodevelopmental outcomes in first 2 years of life
- ➢ Risk of neonatal coagulopathy under the effect of AED

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Risk of epilepsy in offspring:
- 1 parent, with onset >20 years Risk –3%
- 1 parent, with onset <20 years Risk – 9%
- 1 sibling, with onset <10 years Risk – 6%
- 1 parent + 1 sibling Risk – 10%
- Both parents Risk – 15%

- There is Benefit of continuation of therapy in pregnancy, as ''risk of harm to the mother and fetus from a convulsive seizure outweighs risk of therapy".
- No recommendation of changing AED in pregnancy because:
  - Organogenesis is usually complete by then
  - There is Risk of increasing seizure frequency
- If patient is on valproate, avoiding high peak levels by changing BD dosage to TDS/QID, lessens the risk of NTDs.
- Continue folic acid till end of first trimester.

Antepartum Management

Emphasis on multidisciplinary care involving: Obstetrician, neurologist and neonatologist with regular antenatal visits.

At every antenatal visit obstetricians should look for:

- Routine antenatal examination
- Monitor AED serum concentrations: There is no evidence that routine monitoring improves seizure control. Hence, serum level measurement is recommended only following seizures or if non-compliance is suspected.

Exceptions are lamotrigine and oxecarbazepine where serum concentrations are measured as follows:

- As soon as pregnancy is established and;
- Then on a monthly basis and follow patients clinically;
- Consider dose increments by 25% when serum concentrations fall below the patient's pre-pregnancy reference value, or according to clinical needs.

Refer patient for prenatal screening

- Early level II USG to screen for structural abnormalities (anencephaly at 11 weeks, NTDs & cleft at 18 weeks and CHD at 22-24 weeks).
- Triple screen (MSAFP)- detects 95% of open NTDs
- Fetal echo
- Monitoring for any evidence of fetal growth retardation- Neonates of women taking AEDs have an twice the increased risk of small for gestational age (Level B) .
- Vitamin K 20mg / D orally, 36 weeks onwards as prophylaxis for neonatal bleeding.

Patient advised for:

- Routine antenatal investigations, iron, calcium, 2 doses of tetanus toxoid
- Good diet, adequate rest and sleep
- Avoidance of precipitating factor

During labor

Obstetric unit should be equipped with facilities for maternal and neonatal resuscitation Neonates are at increased risk of 1-minute Apgar scores of 7 (Level C) Seizure activity is not an indication for immediate delivery unless status epilepticus.

After delivery

- Current guidelines generally encourage women taking AEDs to nurse their infants. However, close clinical monitoring of the child is advisable.
- Newborns exposed to enzyme- inducing AEDs in utero routinely receive vitamin K at delivery, as is the routine practice for all newborns.
- Gradually reduce the dose if it has been increased during pregnancy, to avoid overdosing; as dose / serum concentration ratios of several of the second- generation AEDs return to pre-pregnancy levels within few weeks after delivery.
- Monitor maternal serum concentrations; (if possible).
- Observe mother and child clinically during breast feeding; particular attention is needed with high Lamotrigine doses.
- When serum concentrations in the mother are high, also perform measurements in the nursing infant, particularly when Lamotrigine is used. Aim at serum concentrations below therapeutic levels in the infant; consider restricted nursing if necessary.

References

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