EPILEPSY in pregnancy

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EPILEPSY :

- Approximately 6 in every 1000 pregnancies are complicated by past or current history of epilepsy , making it **the most common pre-existing neurological condition in pregnancy .**
- **Seizure frequency may increase (37%),decrease (13%) or stay the same (50%) during pregnancy , with labor being high risk time for convulsion .**

EPILEPSY
therapeutic aspects

- The incidence of congenital anomalies is increased significantly among offspring of epileptic mother .
- AED are responsible for the most or all the increase .
- The benefit of seizure control outweigh the risk .
- Poly-therapy with more than drug carries greater risk than monotherapy
- In patient who are fit-free for 2 years the risk of seizure if therapy is withdrawn is less than 20%.

EPILEPSY
therapeutic aspects

- Antiepileptic drugs can affect the fetus and newborn in number of ways :

1- teratogenicity

2-neonatal withdrawal effect

3- vitamin k deficiency with haemorrhagic disease of newborn

4-developmental delay or behavioural difficulties

EPILEPSY
congenital abnormalities

- The incidence of anomalies may actually be determined by a number of different factors :

-an inherent added risk associated with epilepsy , independent of AED

-the use of AED during pregnancy and its type

-the number and severity of seizures during pregnancy

- The risk of major anomalies :

-if not on medication 4%

-on medication 6-10%

Fetal anticonvulsant syndrome
previously named "fetal hydantion syn."

Major abnormalities	Minor abnormalities
Microcephaly	Hyper-telorism
Cleft lip & palate	Distal digital and nail hypoplasia
NTD	Flat nasal bridge
Congenital heart defects	Low set abnormal ears
IUGR	Epicanthic fold
Developmental delay	Long philtrum

Notes ....

- Valproate and carbamazepine are thought to increase risk of NTD
- Valproate more likely cause GI anomalies
- Valproate and phenytoin are more likely cause cardiac defect .
- Carbamazepine , phenytoin , phenobarbital and valproate cause vitamin k deficiency causing hemorrhagic disease of newborn (follow PT , give vit k supplements in the third trimester)
- Phenobarbital , carbamazepine and valproate cause neonatal withdrawal sym and convulsion .
- Phenytoin and carbamazepine may also cause an increase in childhood cancer (neuroblastoma)

Drugs pharmacokinetics

- A number of factors in pregnancy serve to reduce effective serum concentration of AED :

Increase in volume distribution of pregnancy

Increase in renal clearance & reduction in protein concentration

Vomiting and delayed malabsorption

Induction of hepatic enzyme metabolism by pregnancy

- So , we only measure serum level of the drug if :

Suspected non-compliance

increasing seizure activity

Concerns over toxic side effect

Enzyme inducing AED	NON-ENZYME inducing AED
phenobarbital	Valproate
Phenytoin	Lamotrigine
carbamazepine	gabapentin
	Ethosuximide
	Clonazepam

Managing epilepsy
general notes

- Women presenting already pregnant on AED should probably remain on their current regimen , as any teratogenic harm is likely to have occurred already .
- If pregnancy is being planned , some have opinion that valproate should be avoided (carries the greatest risk !!)
- Newer drugs as levetiracetam (keppra) , lamotrigine , gabapentin and tiagabine are less harmful

Managing epilepsy
pre-pregnancy counselling

- Patient should be managed by multi-disciplinary team (obstetrician and neurologist)
- The risk on her & her baby should be discussed , previously mentioned and the risk of the offspring of epilepsy (one parent=4%,one parent and sibling =10% , both parent 15 %)
- Consideration should be given to stopping AED in those who have been seizure free for more than 2 years . And in increments over a prolonged period and supervised by a specialist .
- Where possible , treatment regimens should be simplified to single AED and lowest effective dose .
- Folic acid 5 mg /daily .

Managing epilepsy
antenatal management

- Patient should be managed by multi-disciplinary team (obstetrician and neurologist .
- Screening for fetal anomalies should be offered to all patients , and a fetal cardiac scan may be warranted at 22 weeks gestation .
- Drug level monitoring not routinely done except in starting new and other specific situation .
- Oral vit.k supplements should be taken from 36 weeks onward (10mg/day) .
- If steroid are to be given for usual obstetric indications , women using enzyme-inducing AED should be given 48 mg in total (double the dose)

Managing epilepsy
intrapartum care

- IOL & CS are indicated for the usual obstetric indications . VD is the aim .
- LABOR carries a higher risk of seizure due to sleep disruption , reduced intake and absorption of AED AND HYPERVENTILATION .which may lead to alter free level of AED .
- Seizure during labor are best controlled with IV benzodiazepines (clonazepam or diazepam) (rectal diazepam if no iv access)

Managing epilepsy postpartum care

- The serum levels of AED may rise in postpartum period , so , monitoring and reduction in doses may be necessary .
- **All anticonvulsant reach breast milk** , neonatal side effect are rare , but sedation and withdrawal effect must be watched for , in particular where phenobarbital and benzodiazepine have been used . **Breastfeeding is to be encouraged**
- **Contraceptive advice should be given , the enzyme inducers will reduce the efficacy of cocp , minipill and depo-provera .therefore cocp 50mg of estrogen (high) , shorter pill-free interval and depo-provera every 10 weeks (instead of 12 week) is preferred .**

Mirena is ideal as the locally administered progestogen will not be affected by induced liver enzyme .

THANK YOU …

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