

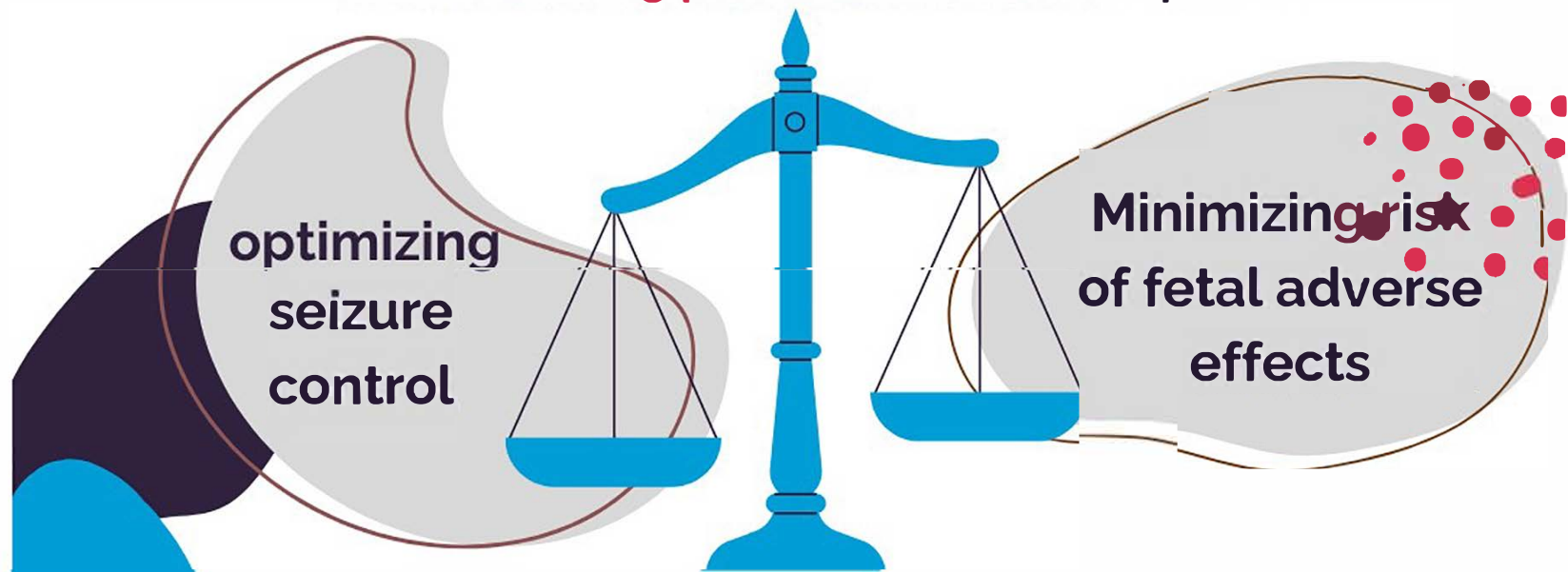
YES-ILAE Graphical summary

**Teratogenesis, Perinatal, and
Neurodevelopmental Outcomes After In
Utero Exposure to Antiseizure
Medication**

Practice Guideline From the AAN, AES, and SMFM

Designed by Alina Ivaniuk and Parthvi Ravat

Epilepsy management in **people with epilepsy
of childbearing potential (PWECP)** requires



1

General counseling recommendations

Engage in **joint decision-making** with PWECP

Recommend ASMs and doses that optimize **both seizure control and fetal outcomes** should pregnancy occur **at earliest opportunity** preconceptionally



2

ASM changes in pregnancy

Minimize the occurrence of **convulsive seizures**

Be **cautious** in attempting to **remove or replace an ASM controlling convulsive seizures**, even if it is not an optimal with regard to the risk to the fetus





Monitor ASM levels throughout pregnancy
as guided by individual ASM pharmacokinetics
and patient clinical presentation

Adjust ASM dose in case of



ASM levels
decrease



Seizure control
worsening
(observed or
anticipated)

Counsel PWECP receiving following ASMs about limited data on pregnancy-related outcomes in these drugs:

Acetazolamide

Eslicarbazepine

Ethosuximide

Lacosamide

Nitrazepam

Perampanel

Piracetam

Pregabalin

Rufinamide

Stiripentol

Tiagabine

Vigabatrin

3

Preventing major congenital malformations (MCM)

2.4%–2.9%
risk of MCM in general population



Counsel patients about risk of MCM taking the general population risk as comparison



Consider lamotrigine, levetiracetam, or oxcarbazepine in PWECP if clinically feasible



Avoid valproic acid if clinically feasible



Counsel PWECP considering or on valproic acid that the risk of MCMs is highest compared to other ASMs

Avoid following ASMs to
reduce risk of malformations:



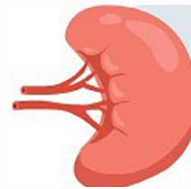
Cardiac

Phenobarbital



Oral clefts

Phenobarbital
Topiramate



Urogenital/renal

Valproic acid

Fetal MCM
screening

Recommend **fetal screening for MCMs** (e.g., anatomical ultrasound) for PWECP who are treated with any ASM during pregnancy



Recommend **fetal cardiac screening** for PWECP treated with **phenobarbital** during pregnancy



4

Intrauterine death and fetal growth restriction

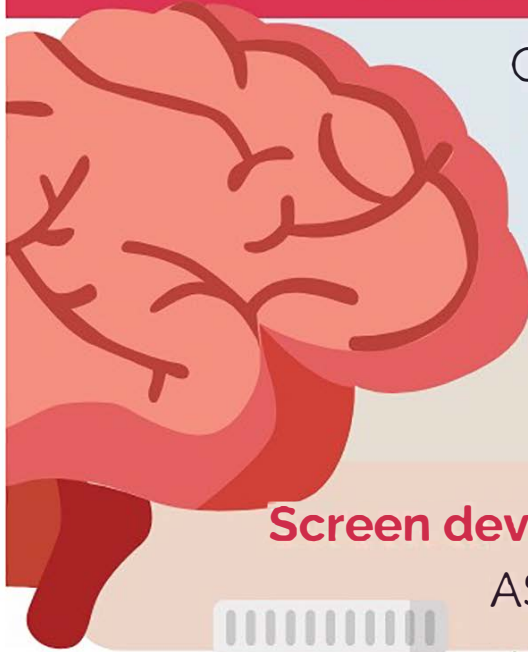
Counsel PWECP that the **prevalence of intrauterine death does not differ** in monotherapy with different ASMs

Avoid valproic acid or topiramate in PWECP to minimize the risk of offspring being born **small for gestational age**

Recommend **fetal growth screening** throughout pregnancy among PWECP treated with **valproic acid or topiramate**

5

Neurodevelopmental outcomes



Counsel PWECP treated with or considering **valproic acid** that in utero exposure to it is associated with **decreased IQ**

Avoid valproic acid to reduce the risk of poor neurodevelopmental outcomes

Screen development in children exposed to any ASM in utero born to PWECP



Prescribe

**at least
0.4 mg**

of folic acid

to reduce risk of neural tube defects, ASD, and decreased IQ

6

Folic acid