Epilepsy in special group: women

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Special issues in women with epilepsy

Special issues in women with epilepsy

- **Side effects of antiepileptic medications**
  - Cosmetic side effects
  - Weight issues
  - Osteoporosis
  - Teratogenic effects
- **Contraception**
- **Pregnancy**
- **Lactation**
- **How to advise the patients**

Contraception

- Which AEDs have potential drug interaction with OCPs?
- A. carbamazepine, topiramate >100mg/d
- B. topiramate >200mg/d, lamotrigine
- C. Levetiracetam, lamotrigine
- D. sodium valproate, phenytoin

Contraception in epilepsy patients

- **AEDs that cause induction of CYP 3A4 increase metabolism of oral contraceptives resulting in failure of contraceptives.**
- **Potent enzyme inducing AEDs:**
  - phenytoin, carbamazepine, primidone, phenobarbital.
- **Less-potent enzyme inducing AEDs:**
  - oxcarbazepine, lamotrigine
  - topiramate >200 mg.

Contraception in epilepsy patients

- **AEDs that are non-enzyme inducing have no effect on oral contraceptives.**

- **Non-enzyme inducing AEDs:**
  - levetiracetam, gabapentin, tiagabine, valproic acid, zonisamide, pregabalin, vigabatrin, topiramate ≤200 mg.

- **Which method of contraception should we recommend in women with epilepsy?**

Antiepileptic Drug	Effect on Hormonal Contraception	Affected by Hormonal Contraception?
Clonazepam, diazepam, ethosuximide, ezogabine, gabapentin, lacosamide, lorazepam, levetiracetam, pregabalin, vigabatrin, zonisamide	None	No
Carbamazepine, clobazam, eslicarbazepine, oxcarbazepine, phenobarbital, phenytoin, primidone, rufinamide	Decreased ethinyl estradiol levels Decreased progestin levels	Unknown
Topiramate	Decreased ethinyl estradiol levels (dose-dependent effect)	Unknown
Perampanel	Decreased progestin levels	Unknown
Lamotrigine	Decreased progestin levels	Decreased lamotrigine levels (with estrogen-containing contraception)
Valproate	No	Decreased valproate levels (with estrogen-containing contraception)

Contraceptive Method	Pregnancies Per Year[a]	Considerations for Women With Epilepsy
Intrauterine device (IUD)		
Copper IUD	<1%	No significant antiepileptic drug (AED) interactions
		Copper IUD may preclude 3-tesla MRI at some institutions
Levonogestrel-releasing IUD	<1%	Levonorgestrel-releasing IUD reduces or eliminates menstrual bleeding
Combined hormonal contraception		
Combined oral contraceptive pills	9%	Not recommended with enzyme-inducing antiepileptic drugs (EIAEDs)
Vaginal ring	9%	Will reduce lamotrigine levels
Transdermal patch	9%	May be used to treat symptoms of polycystic ovary syndrome
		Transdermal patch may worsen seizure control[59]
Progesterone-only contraception		
Etonogestrel implant	0.05%	Efficacy of the etonogestrel implant may be reduced by EIAEDs
Depot medroxyprogesterone acetate injection	6%	The depot medroxyprogesterone acetate injection may offer seizure-control benefit in some patients if amenorrhea achieved
		The depot medroxyprogesterone acetate injection is associated with reversible bone loss
Progesterone-only pills	9%[b]	Progesterone-only pills require excellent compliance
		Efficacy of progesterone-only pills is reduced by EIAEDs and possibly lamotrigine and perampanel

Contraception in epilepsy patients

- Oral contraceptives should contain >50 micrograms of estrogen in the combination and external methods to prevent insufficient protection.

Pregnancy

Epilepsy and pregnancy

- ไม่มียากันชักตัวใดที่ปลอดภัยต่อเด็กในครรภ์มากกว่าตัวอื่นอย่างแท้จริง

Malformation Risks of AEDs in Pregnancy

- No AED 2-3%
- Monotherapy 3.7%-6%
- Polytherapy 6.1%-15%

AED Specific Malformation Rates in Pregnancy

❖ Carbamazepine	2.1% to 4%
❖ Gabapentin	3.7%
❖ Lamotrigine	2.9% to 3.5%
❖ Phenytoin	4.1% to 6.8
❖ Valproic acid	6.1% 10.7%
❖ Topiramate	?
❖ Levetiracetam	?

UK Epilepsy and pregnancy Registry JNNP 2005

Swedish Medical Birth Registry Acta Paediatr 2004;93:174

International lamotrigine Registry

North America Antiepileptic Drug Pregnancy Registry

ยากันชัก	อัตราการเกิด congenital malformation
Carbamazepine	2.1-6.3%
Phenytoin	2.6-7.4%
Phenobarbital	2.9-6.5%
Sodium valproate	6.1-16.3%*
Lamotrigine	1.4-5.2%
Gabapentin	0.8-5.9%**
Topiramate	2-4.8%**
Levetiracetam	2% **

*หากใช้ sodium valproate ในขนาดไม่เกิน 700-1000 mg ต่อวัน อัตราการเกิด malformation จะอยู่ในช่วง 6-9%

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doi: 10.1111/j.1528-1167.2009.02129.x

SPECIAL REPORT

Management issues for women with epilepsy—Focus on pregnancy (an evidence-based review): II. Teratogenesis and perinatal outcomes

Report of the Quality Standards Subcommittee and Therapeutics and Technology Subcommittee of the American Academy of Neurology and the American Epilepsy Society

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Risk of congenital malformation using AED in 1st trimester

- AEDs taken during the first trimester probably increase the risk of MCMs in the offspring of WWE (two adequately sensitive Class II studies) but it cannot be determined if the increased risk is from all AEDs or from only one or some AEDs

Risk of congenital malformation using AED in 1st trimester

AEDs	MCM risk	Evidences
All AEDs	Prob. increased	2 class II (adeq.sensitive)
VPA monoRx	Prob. increased	1 class II
VPA polyRx	Prob. increased	1 class I
CBZ	Prob. does not	1 class I
LTG	Insuff. evidences	1 class I (inadeq.sensitive)
Other specific AEDs	Insuff. evidences	No class III

Risk of congenital malformation using AED in 1st trimester

- If possible, avoidance of the use of VPA as part of polytherapy during the first trimester of pregnancy should be considered to decrease the risk of MCMs (Level B)
- If possible, avoidance of the use of VPA monotherapy during the first trimester of pregnancy may be considered to decrease the risk of MCMs (Level C).

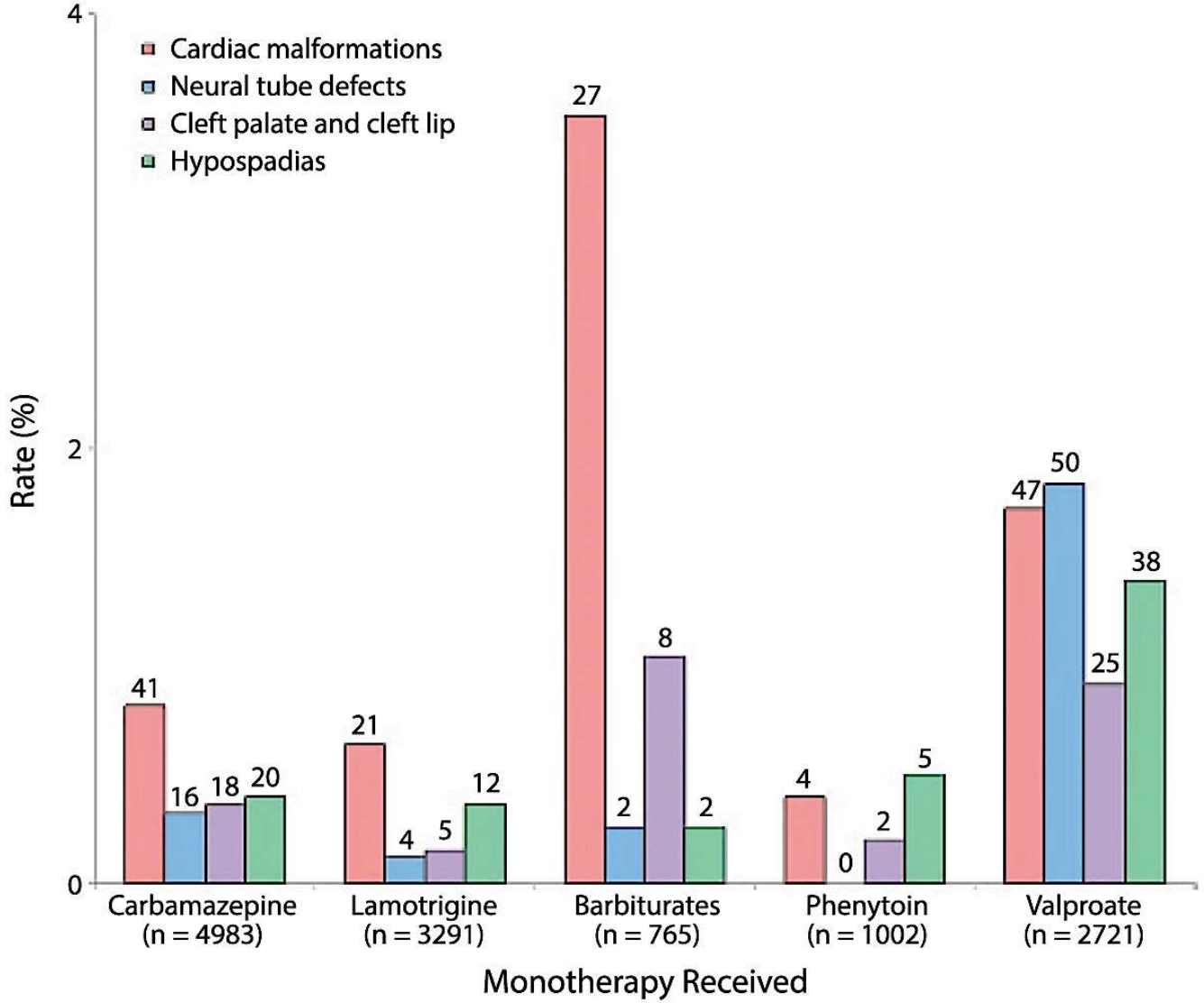
Polytherapy VS monotherapy

- Polytherapy probably contributes to the development of MCMs in the offspring of WWE as compared to monotherapy (one Class I study)
- To reduce the risk of MCMs, avoidance of the use of AED polytherapy during the first trimester of pregnancy, if possible, compared to monotherapy should be considered (Level B).

Are there specific MCMs associated with specific AEDs?

AEDs	MCMs	Evidences
PHT	Cleft palate	1 Class II study
CBZ	Posterior cleft palate	1 Class II study
VPA	Neural tube defects, facial cleft	1 Class I study
PB	Cardiac malformations	2 Class III studies

Are there specific MCMs associated with specific AEDs?



The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Valproic Acid Monotherapy in Pregnancy and Major Congenital Malformations

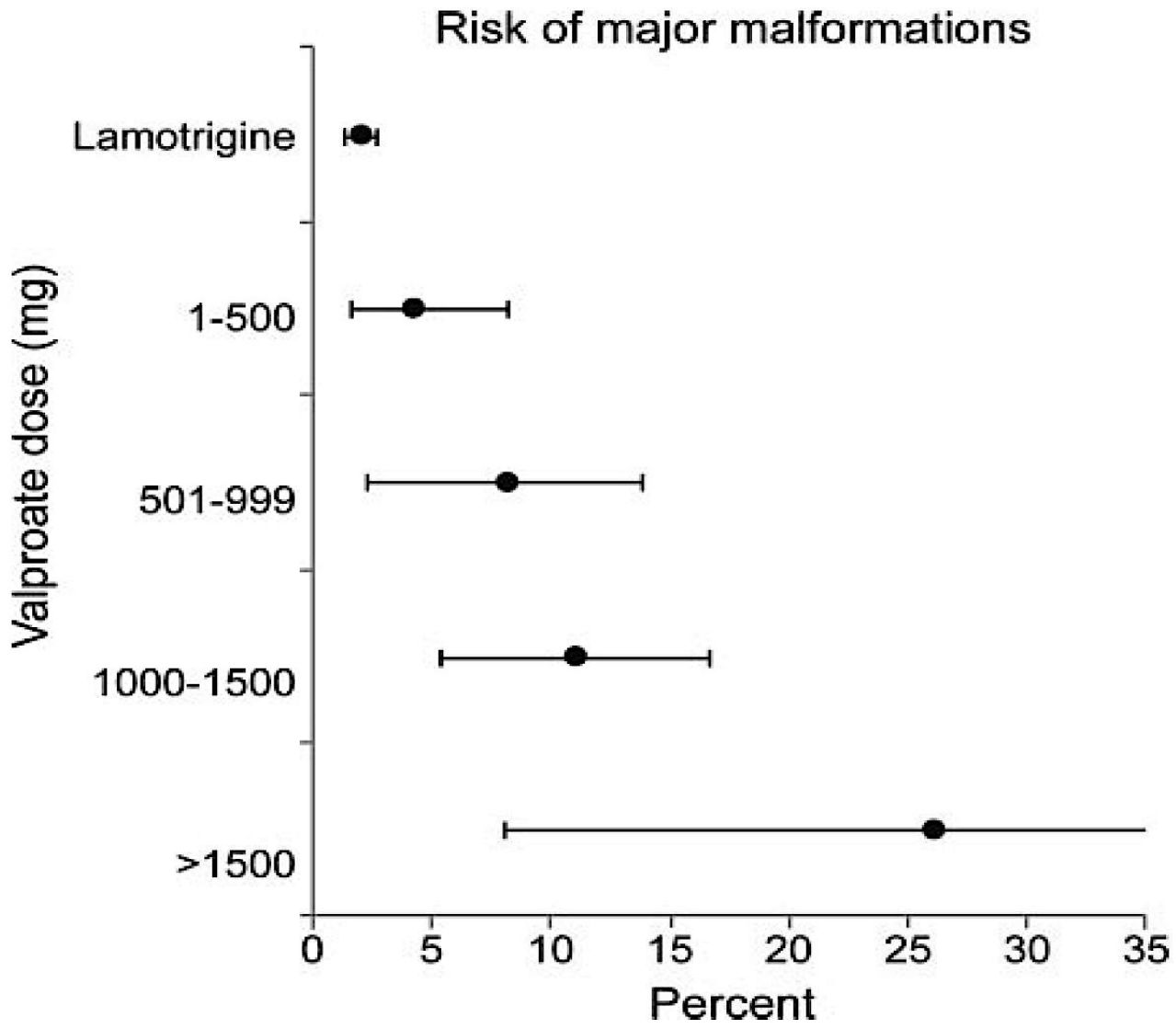
Janneke Jentink, M.Sc., Maria A. Loane, M.Sc., Helen Dolk, Dr.P.H., Ingeborg Barisic, Dr.P.H., Ester Garne, M.D., Joan K. Morris, Ph.D., and Lolkje T.W. de Jong-van den Berg, Ph.D., for the EUROCAT Antiepileptic Study Working Group*

Jentink J,et al. N Engl J Med 2010;362:2185-93.

MCM	Adjusted OR	95% CI
Spina bifida	12.7	7.7-20.7
Atrial septal defect	2.5	1.4-4.4
Cleft palate	5.2	2.8-9.9
Hypospadia	4.8	2.9-8.1
Polydactyly	2.2	1.0-4.5
Craniosynostosis	6.8	1.8-18.8

Jentink J,et al. N Engl J Med 2010;362:2185-93.

Figure 1 **Risk of major malformations by average valproate dose (mg) during the first trimester**



North American AED Pregnancy Registry 1997–2011.

Hernández-Díaz S, et al. Neurology 2012;78;1692

Review of different registries

- Australian Pregnancy Registry
- International Registry of Antiepileptic Drugs and Pregnancy
- North American AED Pregnancy Registry
- UK/Ireland Pregnancy Registry
- Norwegian Medical Birth Registry
- Swedish Medical Birth Registry
- EURAP

Registry	Study	Rate of Major Congenital		
		Carbamazepine	Gabapentin	Lamotrigine
Australian Pregnancy Registry	Vajda et al, 2014[10]	5.5% (346)	0% (14)	4.6% (307)
Danish Registry	Mølgaard-Nielsen, Hviid, 2011[11]	NA	1.7% (59)	3.7% (1019)
International Registry of Antiepileptic Drugs and Pregnancy	Tomson et al, 2011[12]	5.6% (1402)	NA	2.9% (1280)
Finland National Birth Registry	Artama et al, 2005[13]	2.7% (805)	NA	NA
GlaxoSmithKline Lamotrigine Registry	Cunnington et al, 2011[14]	NA	NA	2.2% (1558)
North American AED Pregnancy Registry	Hernández-Díaz et al, 2012[15]	3.0% (1033)	0.7% (145)	2.0% (1562)
Norwegian Medical Birth Registry	Veiby et al, 2014[16]	2.9% (685)	NA	3.4% (833)
Swedish Medical Birth Registry	Tomson, Battino, 2012[17]	2.7% (1430)	0% (18)	2.9% (1100)
UK/Ireland pregnancy registry	Campbell et al, 2014[18] Mawhinney et al, 2013[19] Hunt et al, 2008[20] Morrow et al, 2006[21]	2.6% (1657)	3.2% (32)	2.3% (2098)

AED = antiepileptic drug; NA = not applicable.

Malformations With Individual Antiepileptic Drugs as Monotherapy (N =)

Levetiracetam	Oxcarbazepine	Phenobarbital	Phenytoin	Topiramate	Valproic Acid
2.4% (82)	5.9% (17)	0% (4)	2.4% (41)	2.4% (42)	13.8% (253)
0% (58)	2.8% (393)	NA	NA	4.6% (108)	NA
1.6% (126)	3.3% (184)	7.4% (217)	5.8% (103)	6.8% (73)	9.7% (1010)
NA	NA	NA	NA	NA	10.7% (263)
NA	NA	NA	NA	NA	NA
2.4% (450)	2.2% (182)	5.5% (199)	2.9% (416)	4.2% (359)	9.3% (323)
1.7% (118)	1.8% (57)	7.4% (27)	NA	4.2% (48)	6.3% (333)
0% (61)	3.7% (27)	14% (7)	6.7% (119)	7.7% (52)	4.7% (619)
0.7% (304)	NA	NA	3.7% (82)	9% (203)	6.7% (1290)

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Review

Major congenital malformations in children of women with epilepsy

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ABSTRACT

It has been long known that the risk of major congenital malformations is increased among children of mothers with epilepsy. This is mainly due to the teratogenic effects of antiepileptic drugs although other factors, such as genetically determined individual susceptibility, are likely to contribute. Recent large scale prospective epilepsy and pregnancy registries have indicated that the rate of major congenital malformations may be at most two-fold higher than expected with exposure in utero to the presently most frequently used antiepileptic drugs such as carbamazepine or lamotrigine. Higher rates are consistently reported with exposure to valproate. The risk of teratogenic effects appears to be dose dependent and the lowest effective dose should thus be established before pregnancy regardless of which antiepileptic drug the woman is taking. Major changes such as switches between drugs should be avoided when pregnancy is established.

Overall rates (%) of major congenital malformations (malformed/exposed) for different monotherapies. Data from different prospective registers.

Source	General population	Untreated epilepsy	Valproate	Carbamazepine	Lamotrigine	Phenobarbital	Phenytoin	Levetiracetam	Oxcarbazepine	Topiramate
EURAP [19]			9.7% (98/1010	5.6% (79/1402	2.9% (37/1280)	7.4% (16/217)	5.8% (6/103)	1.6% (2/126)	3.3% (6/184)	6.8% (5/73)
NAAPR [20]		1.1% (5/442	9.3% (30/323)	3.0% (31/1033)	1.9% (31/1562)	5.5% (11/199)	2.9% (12/416)	2.4% (11/450)	2.2% (4/182)	4.2% (15/359)
UKIre [21–23]			6.7% (82/1220)	2.6% (43/1657)	2.3% (49/2098)		3.7% (3/82)	0.7% (2/304)		4.3% (3/70)
AUS [25]		3.3% (5/153	13.8% (35/253)	5.5% (19/346)	4.6% (14/307)		2.4% (1/41)	2.4% (2/84)	5.9% (1/17)	2.4% (1/42)
NMBR [4]	2.9%	2.8%	6.3% (21/333)	2.9% (20/685)	3.4% (28/833)	7.4% (2/27)		1.7% (2/118)	1.8% (1/57)	4.2% (2/48)
SMBR*	2.1%		4.7% (29/619)	2.7% (38/1430)	2.9% (32/1100)		6.7% (8/119)	(0/61)	3.7% (1/27)	7.7% (4/52)
GSK [12]					2.2% (35/1558)					

* As reported in Ref. [2].

Seizure 2015;28: 46–50

Comparative risk of major congenital malformations with eight different antiepileptic drugs: a prospective cohort study of the EURAP registry

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See Comment page 485

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Summary

Background Evidence for the comparative teratogenic risk of antiepileptic drugs is insufficient, particularly in relation to the dosage used. Therefore, we aimed to compare the occurrence of major congenital malformations following prenatal exposure to the eight most commonly used antiepileptic drugs in monotherapy.

Methods We did a longitudinal, prospective cohort study based on the EURAP international registry. We included data from pregnancies in women who were exposed to antiepileptic drug monotherapy at conception, prospectively identified from 42 countries contributing to EURAP. Follow-up data were obtained after each trimester, at birth, and 1 year after birth. The primary objective was to compare the risk of major congenital malformations assessed at 1 year after birth in offspring exposed prenatally to one of eight commonly used antiepileptic drugs (carbamazepine, lamotrigine, levetiracetam, oxcarbazepine, phenobarbital, phenytoin, topiramate, and valproate) and, whenever a dose dependency was identified, to compare the risks at different dose ranges. Logistic regression was used to make direct comparisons between treatments after adjustment for potential confounders and prognostic factors.

Findings Between June 20, 1999, and May 20, 2016, 7555 prospective pregnancies met the eligibility criteria. Of those eligible, 7355 pregnancies were exposed to one of the eight antiepileptic drugs for which the prevalence of major congenital malformations was 142 (10·3%) of 1381 pregnancies for valproate, 19 (6·5%) of 294 for phenobarbital, eight (6·4%) of 125 for phenytoin, 107 (5·5%) of 1957 for carbamazepine, six (3·9%) of 152 for topiramate, ten (3·0%) of 333 for oxcarbazepine, 74 (2·9%) of 2514 for lamotrigine, and 17 (2·8%) of 599 for levetiracetam. The prevalence of major congenital malformations increased with the dose at time of conception for carbamazepine (p=0·0140), lamotrigine (p=0·0145), phenobarbital (p=0·0390), and valproate (p<0·0001). After adjustment, multivariable analysis showed that the prevalence of major congenital malformations was significantly higher for all doses of carbamazepine and valproate as well as for phenobarbital at doses of more than 80 mg/day than for lamotrigine at doses of 325 mg/day or less. Valproate at doses of 650 mg/day or less was also associated with increased risk of major congenital malformations compared with levetiracetam at doses of 250–4000 mg/day (odds ratio [OR] 2·43, 95% CI 1·30–4·55; p=0·0069). Carbamazepine at doses of more than 700 mg/day was associated with increased risk of major congenital malformations compared with levetiracetam at doses of 250–4000 mg/day (OR 2·41, 95% CI 1·33–4·38; p=0·0055) and oxcarbazepine at doses of 75–4500 mg/day (2·37, 1·17–4·80; p=0·0169).

Interpretation Different antiepileptic drugs and dosages have different teratogenic risks. Risks of major congenital malformation associated with lamotrigine, levetiracetam, and oxcarbazepine were within the range reported in the literature for offspring unexposed to antiepileptic drugs. These findings facilitate rational selection of these drugs, taking into account comparative risks associated with treatment alternatives. Data for topirama[illegible] should be interpreted cautiously because of the small number of exposures in this study.

	Antiepileptic drugs								Total number of offspring (n=7355)	Time of detection		
	arbamazepine n=1957)	Lamotrigine (n=2514)	Levetiracetam (n=599)	Oxcarbazepine (n=333)	Phenobarbital (n=294)	Phenytoin (n=125)	Topiramate (n=152)	Valproate (n=1381)		Prenatally	Birth (≤2 months after delivery)	>2 months to ≤1 year
Cardiac	28 (1%)	15 (1%)	5 (1%)	4 (1%)	8 (3%)	5 (4%)	3 (2%)	34 (2%)	102 (1%)	10	71	21
Cleft lip or palate	2 (<1%)	3 (<1%)	1 (<1%)	1 (<1%)	1 (<1%)	0	0	6 (<1%)	14 (<1%)	2	12	0
Hypospadias	10 (1%)	6 (<1%)	1 (<1%)	0	1 (<1%)	0	1 (1%)	22 (2%)	41 (1%)	0	40	1
Neural tube defects	7 (<1%)	1 (<1%)	0	0	2 (1%)	1 (1%)	0	16 (1%)	27 (<1%)	23	4	0
Polydactyly	2 (<1%)	0	0	1 (<1%)	2 (1%)	0	0	8 (1%)	13 (<1%)	0	13	0
Gastrointestinal	7 (<1%)	8 (<1%)	1 (<1%)	0	0	0	0	2 (<1%)	18 (<1%)	6	11	1
Renal	12 (1%)	8 (<1%)	1 (<1%)	0	1 (<1%)	0	0	7 (1%)	29 (<1%)	12	9	8
Other major congenital malformations	31 (2%)	27 (1%)	8 (1%)	4 (1%)	4 (1%)	2 (2%)	2 (1%)	30 (2%)	108 (1%)	14	66	28
Multiple major congenital malformations	8 (<1%)	6 (<1%)	0	0	0	0	0	17 (1%)	31 (<1%)	9	22	0
Total number of major congenital malformations	107 (5%)	74 (3%)	17 (3%)	10 (3%)	19 (6%)	8 (6%)	6 (4%)	142 (10%)	383 (5%)	76	248	59
No major congenital malformations reported	850 (95%)	2440 (97%)	582 (97%)	323 (97%)	275 (94%)	117 (94%)	146 (96%)	1239 (90%)	6972 (95%)	..	..	..

Data are n (%) of affected offspring, unless stated otherwise.

Table 5: **Major congenital malformations associated with eight different antiepileptic monotherapies and their time of detection**

Lancet Neurol 2018; 17: 530–38

Treatment for epilepsy in pregnancy: neurodevelopmental outcomes in the child (Review)

Bromley R, Weston J, Adab N, Greenhalgh J, Sanniti A, McKay AJ, Tudur Smith C, Marson AG

THE COCHRANE COLLABORATION®

Bromley R, et al. Cochrane Database of Systematic Reviews 2014, Issue 10. Art. No.: CD010236.

Characteristics of the studies

The review included 28 studies. Participants were women with epilepsy taking commonly used AEDs who were compared to either women without epilepsy or women who had epilepsy but who were not treated with AEDs. Comparisons were also made between children exposed to different AEDs in the womb. The evidence presented in this review was up to date to May 2014.

Results

- The evidence for younger children exposed to carbamazepine (CBZ) in the womb was conflicting, however this was likely to be due to differences in the way that these studies were carried out. In older children those exposed to CBZ were not poorer in their IQ than children who were not exposed. No link was found between the dose of CBZ and child ability.

- Both younger and older children exposed in the womb to sodium valproate (VPA) showed poorer cognitive development in comparison to children not exposed and children exposed to other AEDs. A link between dose of VPA and child ability was found in six studies; with higher doses of the drug linked to a lower IQ ability in the child. The level of this difference was likely to increase the risk of poorer educational levels.

- Children exposed to CBZ in the womb did not differ in their skills from children exposed to lamotrigine (LTG), however very few studies investigated this. There were also no differences between children exposed to phenytoin (PHT) in the womb and those exposed to CBZ or those exposed to LTG.

- There were very limited data on newer medications such as LTG, levetiracetam or topiramate.

Bromley R, et al. Cochrane Database of Systematic Reviews 2014, Issue 10. Art. No.: CD010236.

Conclusions

This review found that children exposed to VPA in the womb were at an increased risk of poorer neurodevelopment scores both in infancy and when school aged. The majority of evidence indicates that exposure in the womb to CBZ is not associated with poorer neurodevelopment. Data were not available for all AEDs that are in use or for all aspects of child neurodevelopment. This means decision making for women and their doctors is difficult. Further research is needed so that women and their doctors can make decisions based on research evidence about which medication is right for them in their childbearing years.

Bromley R, et al. Cochrane Database of Systematic Reviews 2014, Issue 10. Art. No.: CD010236.

In utero exposure to levetiracetam vs valproate

Development and language at 3 years of age

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ABSTRACT

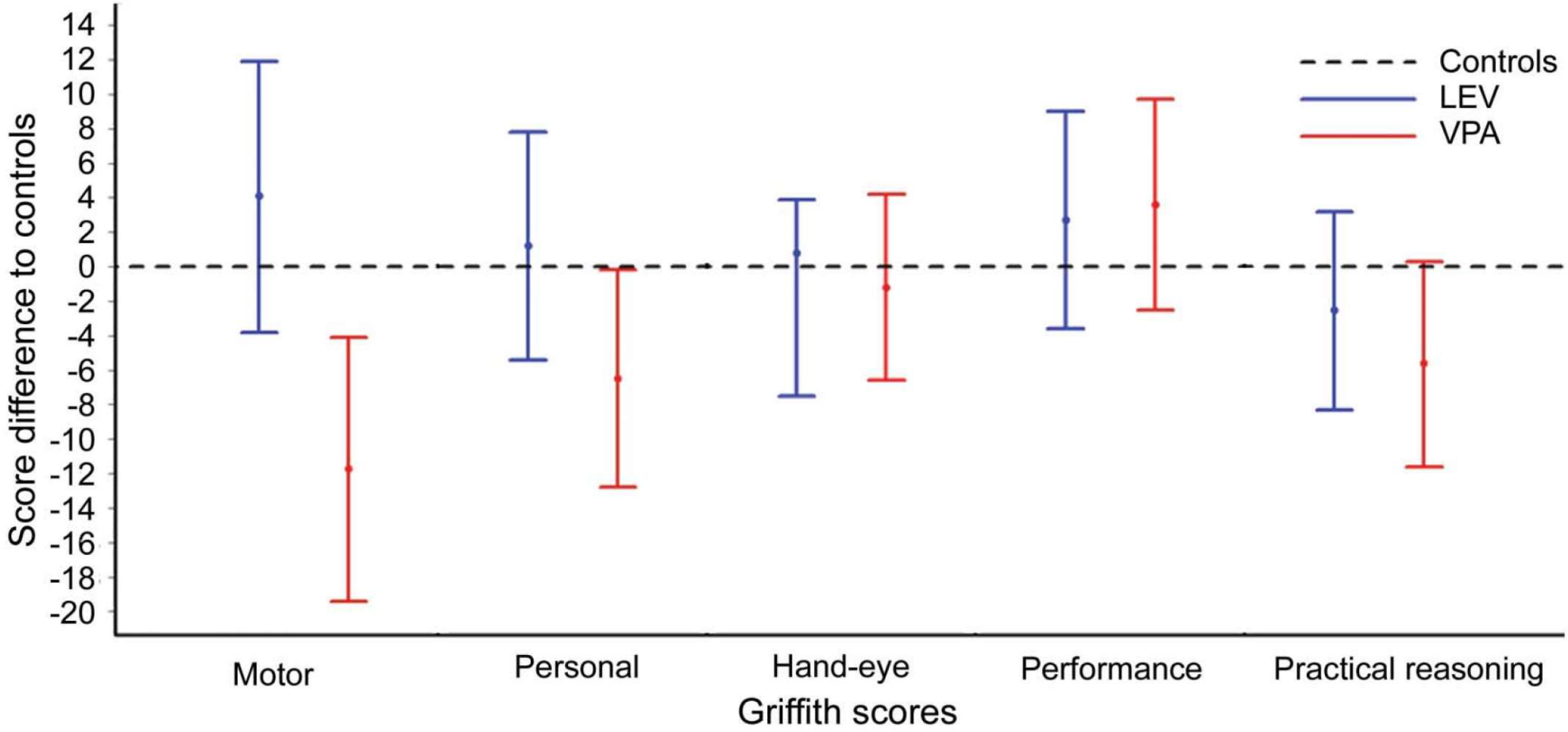
Objective: To compare the cognitive and language development of children born to women with epilepsy (WWE) exposed in utero to levetiracetam (LEV) or sodium valproate (VPA) and control children born to women without epilepsy not taking medication during pregnancy.

Methods: The children, aged between 36 and 54 months, were recruited from the United Kingdom and assessed using the Griffiths Mental Development Scales and the Reynell Language Development Scale. Maternal demographic and epilepsy information was also collected for use in statistical regression. This is an observational study with researchers not involved in the clinical management of the mothers enrolled.

Results: After controlling for confounding variables, children exposed to LEV in utero (n = 53) did not differ from unexposed control children (n = 131) on any scale administered. Children exposed to VPA (n = 44) in utero scored, on average, 15.8 points below children exposed to LEV on measures of gross motor skills (95% confidence interval [CI] −24.5 to −7.1, $p < 0.001$), 6.4 points below on comprehension language abilities (95% CI −11.0 to −1.8, $p = 0.005$), and 9.5 points below on expressive language abilities (95% CI −14.7 to −4.4, $p < 0.001$).

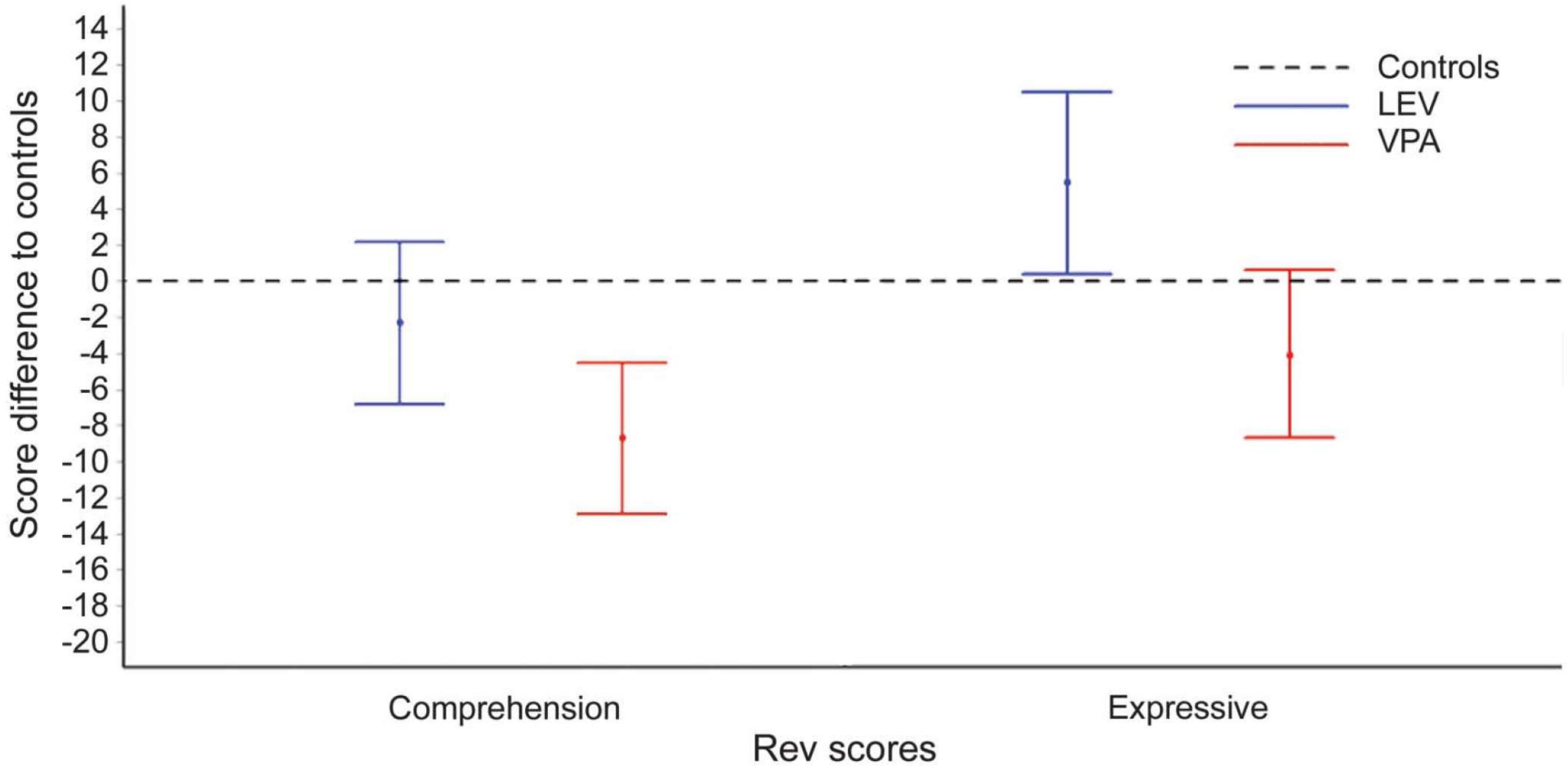
Conclusion: The current study indicates that children exposed to LEV in utero were superior in their language and motor development in comparison to children exposed to VPA. This information should be used collaboratively between health care professionals and WWE when deciding on women's preferred choice of antiepileptic drug. ***Neurology*® 2014;82:213–221**

Shallcross R, et al. Neurology 2014;82:213–221



LEV = levetiracetam; VPA = sodium valproate.

Shallcross R, et al. Neurology 2014;82:213–221



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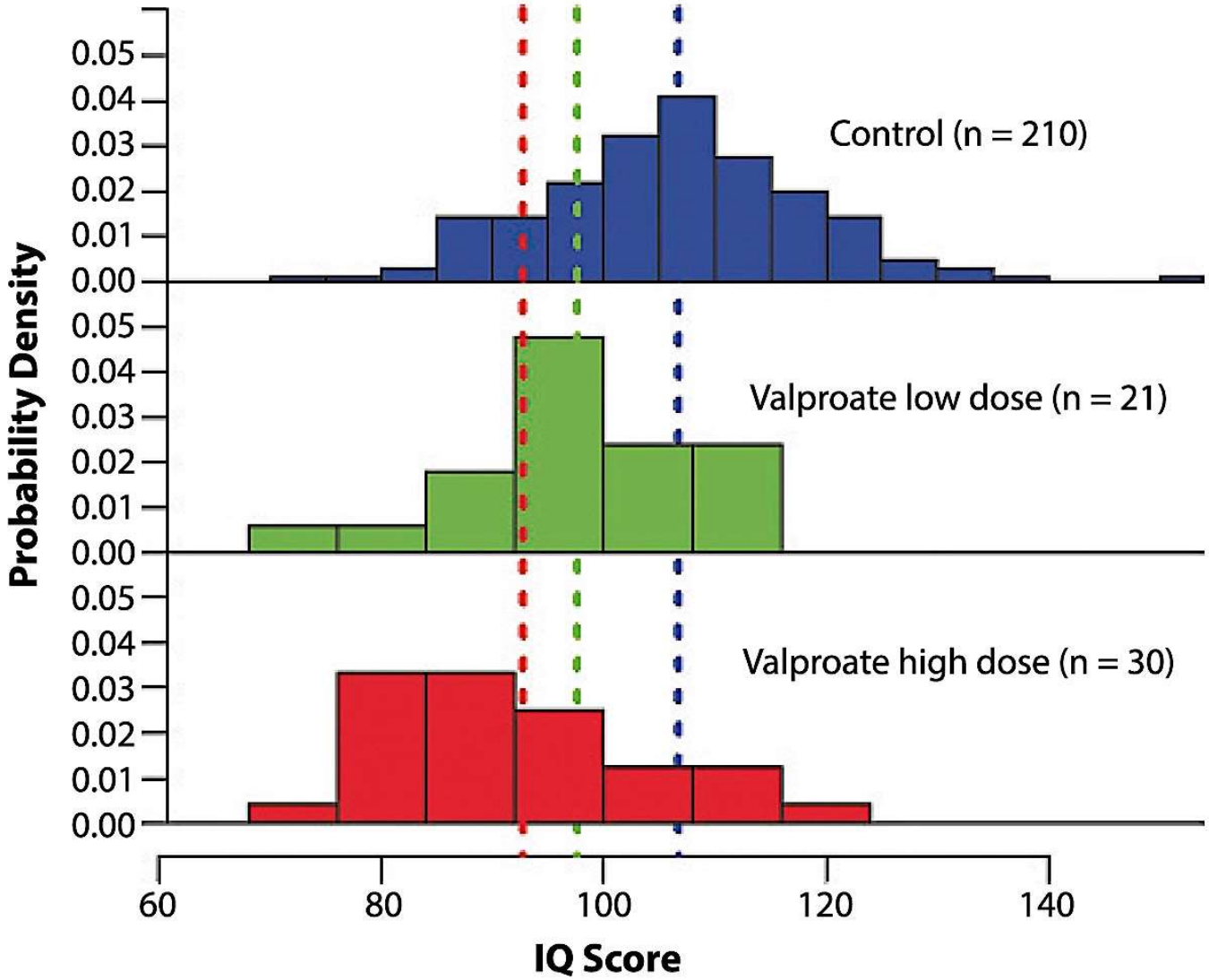

Probability Density
0.05
0.04
0.03
0.02
0.01
0.00
Control (n = 210)
Valproate low dose (n = 21)
Valproate high dose (n = 30)
60
80
100
120
140
IQ Score

PHARMACOKINETIC OF AEDS DURING PREGNANCY

Changes in AEDs clearance or levels

AEDs	Level changes	Evidences
LTG	↓ >35%	1 class I, 2 class II
CBZ	↓ Up to 12%	1 class I
PHT	↓ Free PHT up to 16%	1 class I
OXC	↓ MHD conc. up to 36-61%	2 class III
LEV	↓ Up to 60%	1 class II
PB, VPA, ETX	Insufficient data	

Changes in AED level or clearance

- Monitoring of lamotrigine, carbamazepine, and phenytoin levels during pregnancy should be considered (Level B)
- Monitoring of levetiracetam and oxcarbazepin levels during pregnancy may be considered (Level C)
- There is insufficient evidence to support or refute a change in phenobarbital, valproate, primidone, or ethosuximide levels related to pregnancy (Level U)

BREAST FEEDING IN WOMEN WITH EPILEPSY

Breast milk penetration

- Valproate, phenobarbital, phenytoin, and carbamazepine may be considered as not transferring into breast milk to as great an extent as primidone, levetiracetam, gabapentin,lamotrigine, and topiramate (Level B when compared to primidone and levetiracetam and Level C when compared to gabapentin, lamotrigine, and topiramate).


WHAT WE SHOULD DO?

Epilepsy and pregnancy

- ควรมีการให้ความรู้เกี่ยวกับโอกาสและความเสี่ยงที่จะเกิดความผิดปกติของเด็กในครรภ์สำหรับหญิงวัยเจริญพันธุ์ที่ต้องรับประทานยากันชัก เพื่อผู้ป่วยจะได้สามารถวางแผนและตัดสินใจเรื่องการตั้งครรภ์ล่วงหน้าได้

Epilepsy and pregnancy

- **ควรวางแผนล่วงหน้าก่อนการตั้งครรภ์เนื่องจาก**
  - ในกรณีที่มารดาไม่มีอาการชักนานเกิน 2 ปีอาจพิจารณาหยุดยากันชักได้
  - ในกรณีที่คุมอาการชักได้ดี และมารดารับประทานยากันชักมากกว่า 1 ชนิดอาจพิจารณาลดขนาดยาหรือลดยาเหลือ 1 ชนิด เพื่อลดโอกาสการเกิดผลข้างเคียงต่อทารกในครรภ์

Epilepsy and pregnancy

- **ควรวางแผนล่วงหน้าก่อนการตั้งครรภ์เนื่องจาก**
  - ควรหลีกเลี่ยงการใช้ยากันชักที่มี teratogenic effect สูง เช่น sodium valproate ในช่วงการตั้งครรภ์หากสามารถทำได้

Epilepsy and pregnancy

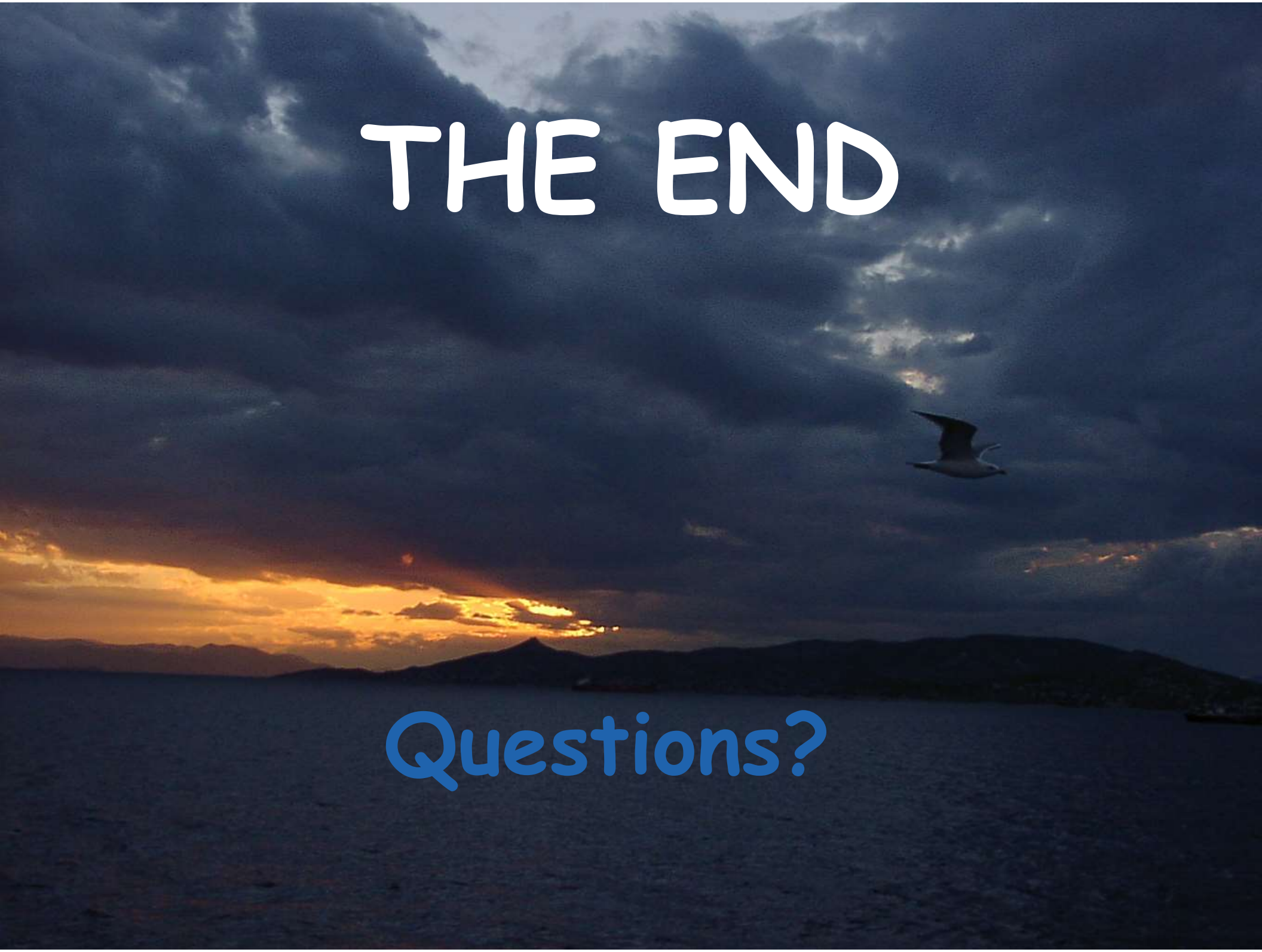
- ในขณะที่ผู้ป่วยตั้งครรภ์ไม่ควรปรับหรือเปลี่ยนยากันชัก เนื่องจากโอกาสที่จะเกิดอันตรายต่อมารดาและทารกในครรภ์หากผู้ป่วยเกิดการชักมีมากกว่าโอกาสการเกิดผลข้างเคียงต่อทารกในครรภ์
- ควรมีการตรวจคัดกรองความผิดปกติของเด็กในครรภ์มารดา โดยเฉพาะ malformation ที่พบได้บ่อยและรุนแรง เช่น neural tube defect

Epilepsy and pregnancy

- ในผู้หญิงวัยเจริญพันธ์ควรได้รับ folic acid supplementation ในขนาด 4-5 mg/d ซึ่งจากการศึกษาที่ผ่านมา อาจช่วยลดโอกาสการเกิด neural tube defects ได้บ้าง
- ในผู้ป่วยที่ได้รับ enzyme inducing AEDs เด็กแรกคลอดควรได้รับ vitamin K supplement หลังคลอดเช่นเดียวกับเด็กอื่นๆ

Epilepsy and lactation

- ยากันชักส่วนมากไม่ได้ excrete ออกมาในน้ำนมมากนัก จึงมีผลน้อยต่อเด็ก ยกเว้น phenobabital, levetiracetam, gabapentin,lamotrigine, and topiramate
- Phenobarbital อาจจะมีผลทำให้เด็กง่วงซึมได้


THE END
Questions?