Lamotrigine exposure during lactation – Concentrations and effects in the newborn

A retrospective observational cohort study

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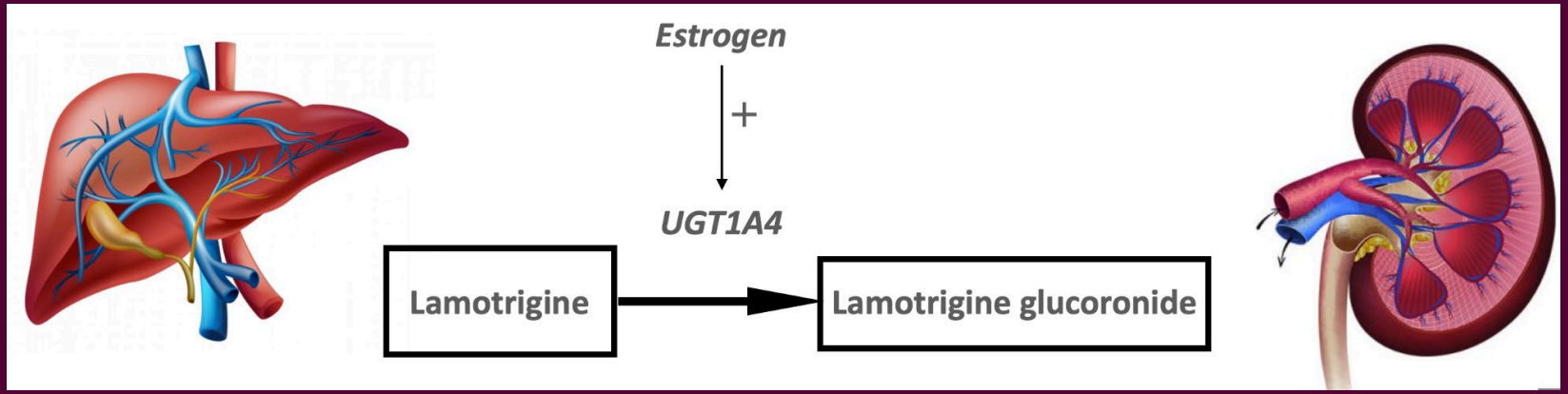
Can mothers safely breastfeed their infants while on lamotrigine?

- Fatigue
- Elevated liver enzymes
- Elevated platelets
- Respiratory arrest

Lamotrigine metabolism



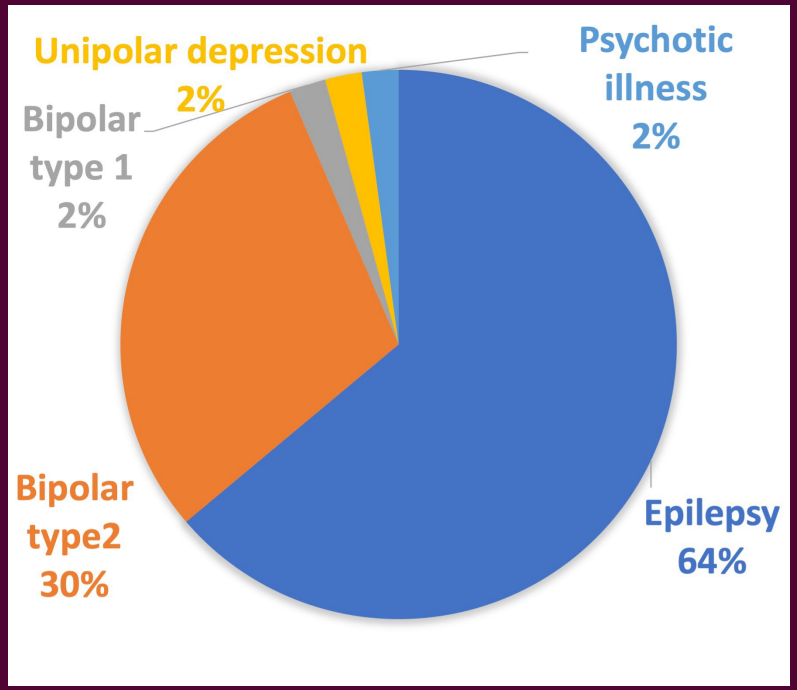
Methology

- 47 infant-lamotrigine exposure through lactation
- Stockholm 2011-2021
- Data from medical records
- Clinical program: examination and p-lamotrigine liver enzymes at birth, 2 weeks, 4 weeks and 8 weeks

Questions

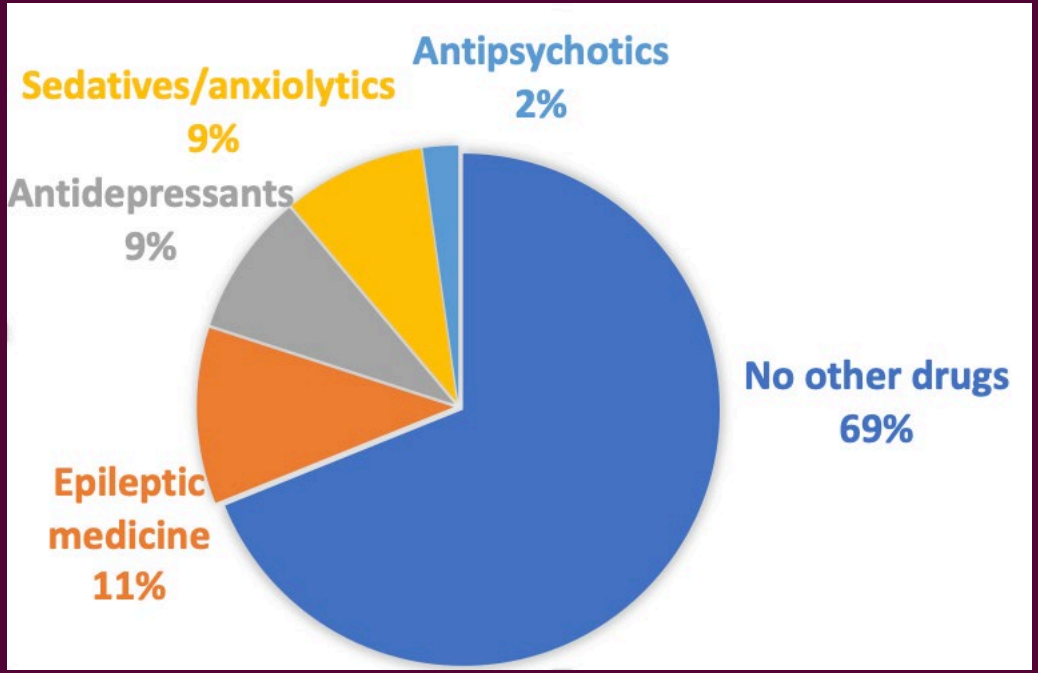
- Concentrations in the infants?
- Effect in the infant
- What maternal dosage gives small risk in the infant?
- Ratio of concentration in infants vs mother
- Frequency and significance of elevated liver enzymes

Mothers diagnosis and dose



Mothers diagnosis	Mean (SD) dose at delivery
Epilepsy	518 (261) mg
Bipolar disorder type 2	204 (124) mg
Other psychiatric diagnosis	200 (100) mg
All diagnosis	414 (272) mg

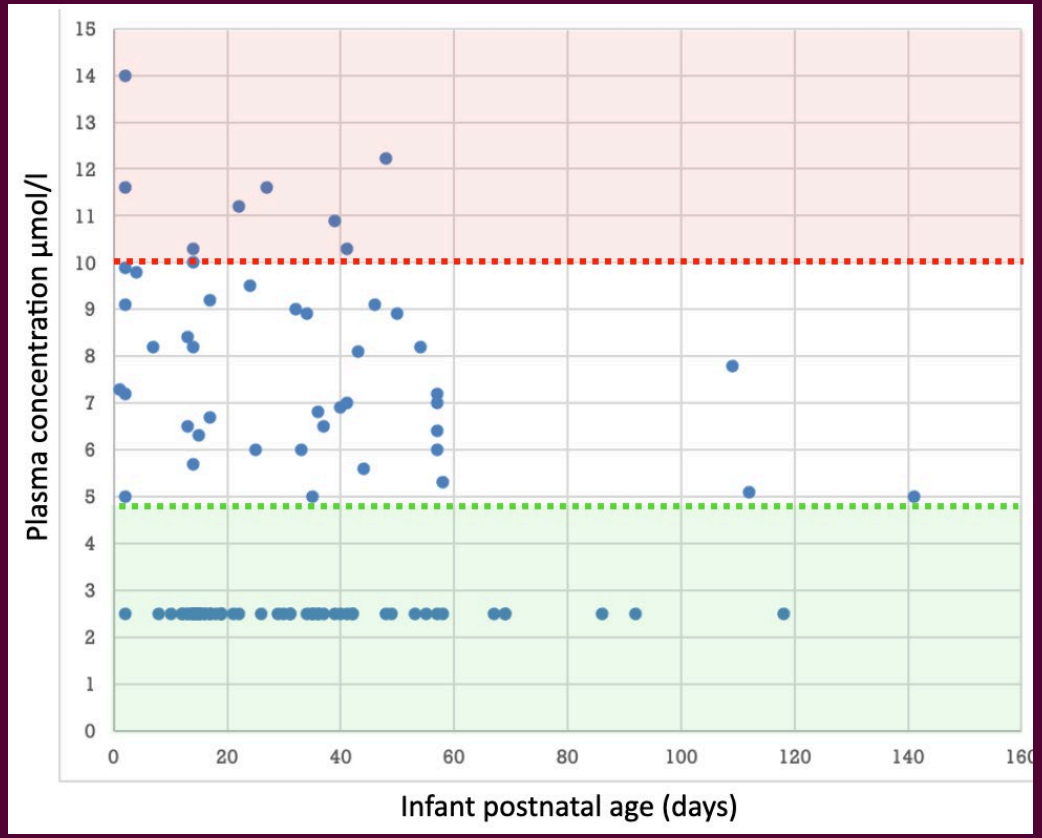
Mother's concomitant psychoactive drugs at delivery



Infant characteristics

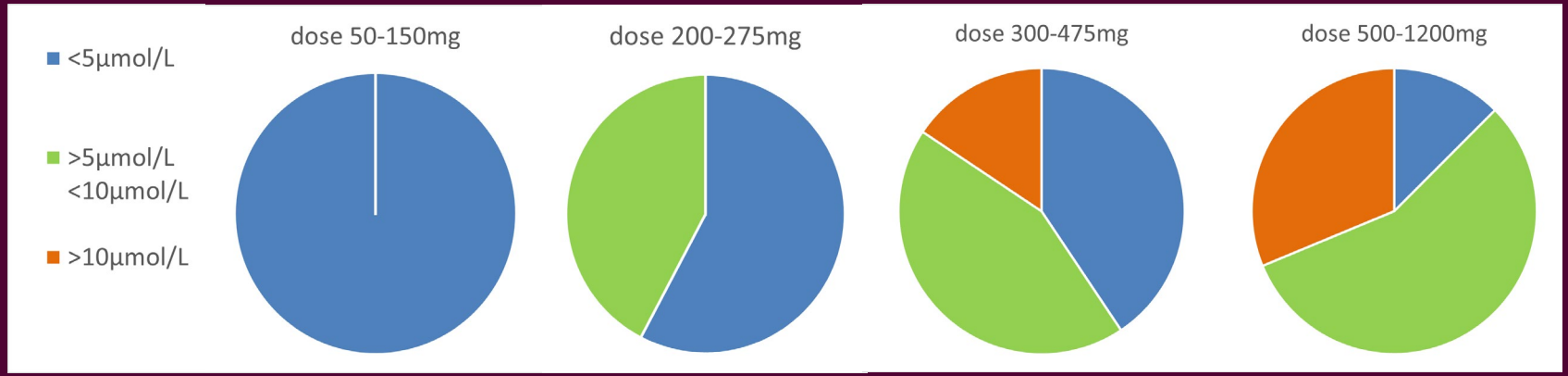
- 47 singeltons
- 2/3 girls, 1/3 boys
- One late preterm
- 3 infants large for gestational age
- 2/3 exclusive breastfeeding

Infant plasma lamotrigine concentrations

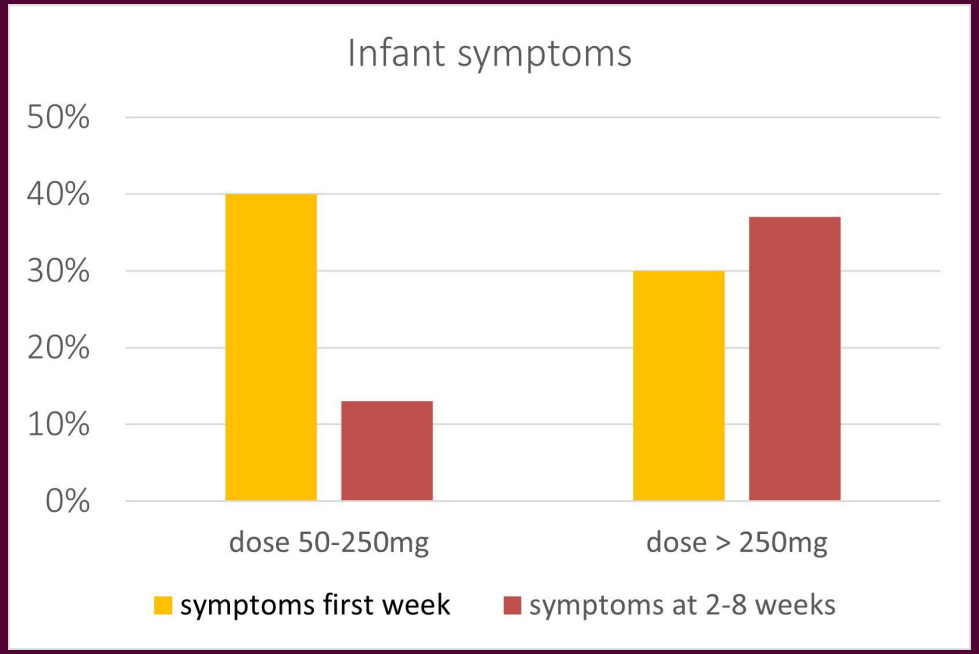


Infant/mother Ratio 0,27

Infant concentrations according to mothers dose



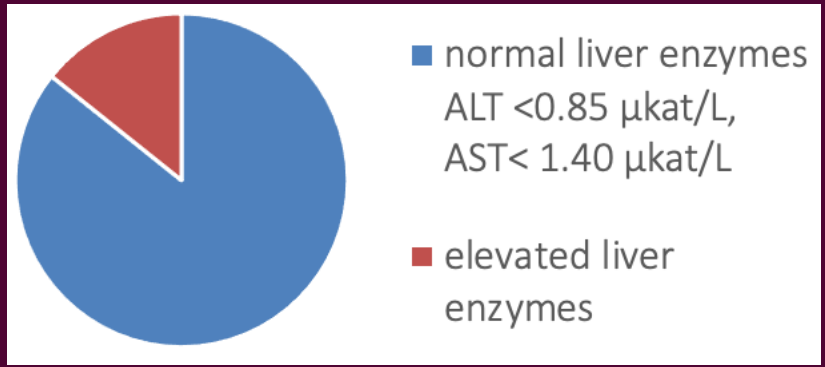
Infant symptoms – maternal dose



No infant symtoms when maternal dose <200mg

Liver enzymes

- 21 infants
- 3 infants elevated ALT
- Maternal dose 200-350mg/day
- Infant concentration max 7.8 µmol/L
- Recommendation to reduce breastfeeding



Adverse events - Infant with lethargy

- Mother epilepsy, 525mg lamotrigine
- 6 weeks lethargic
- p-lamotrigine 12.22 µmol/L
- Symtoms disappeared with formula

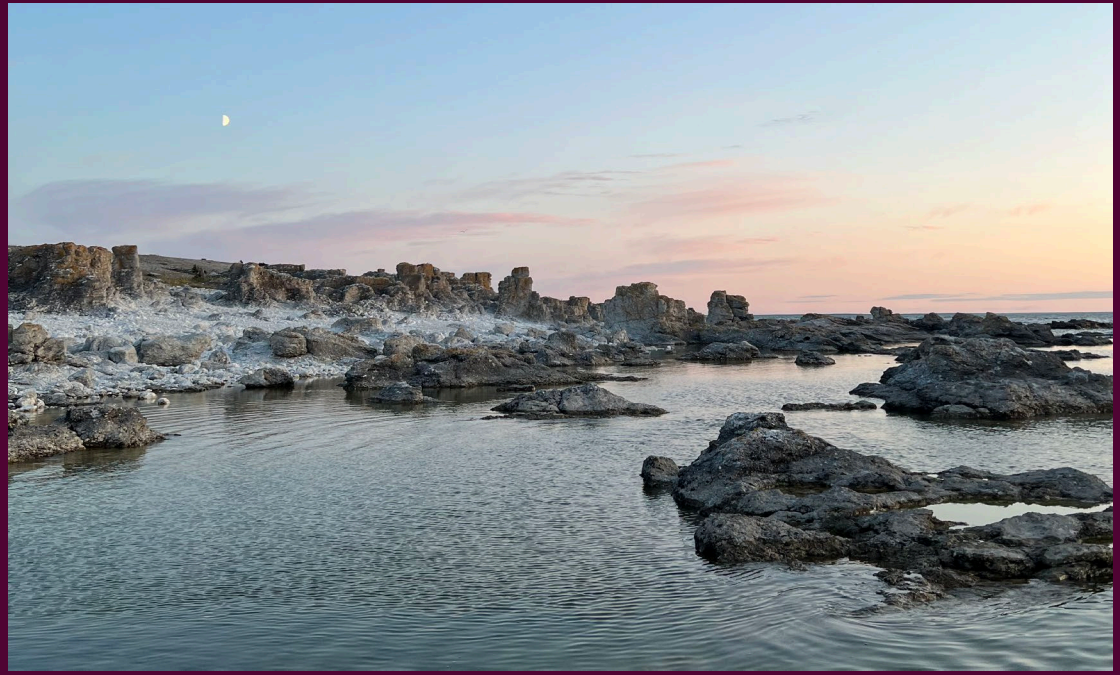
Summary

- Lamotrigine concentrations 1/4 in infants vs mother
- One infant with serious side effect
- Maternal lamotrigine dose <200mg
- Elevated liver enzymes in 14%.

Recommendations

→ Safe in a clinical follow up program
→ Safe maternal dose <200mg/day?
→ Elevated liver enzymes needs to be studied further!

Thank you!



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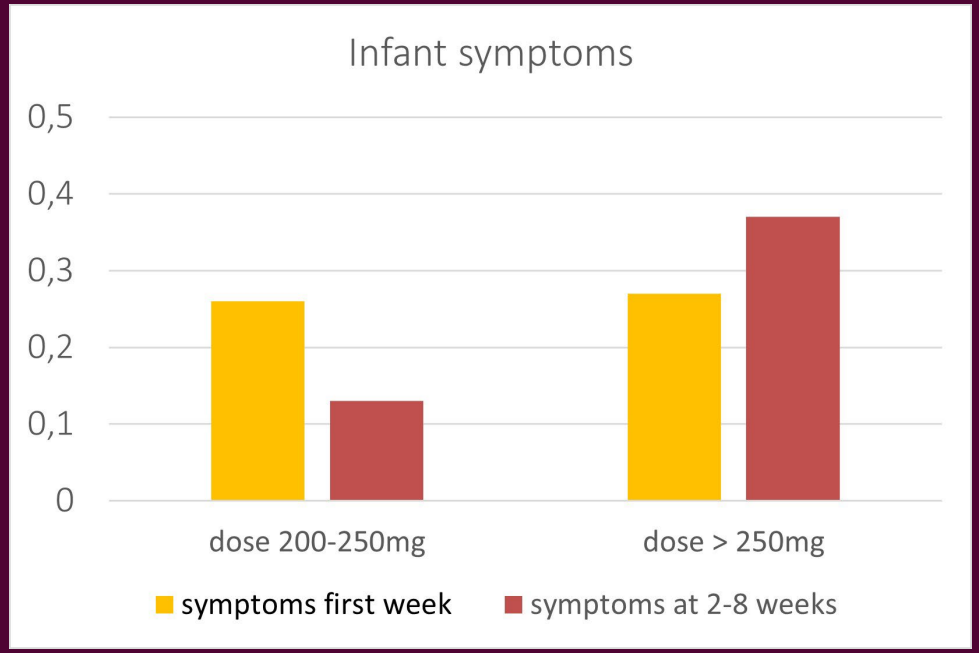
Infant Age	Exclusive breastfeeding %
0 - 2 weeks	75
> 2 weeks - 1 months	65
> 1 - 2 months	63
> 2 months	67

Infant symptoms – maternal dose



No infant symtoms maternal dose <200mg

Symptoms 1 week	N=15
Respiratory (PAS, CPAP)	4
Neurological (tired, shaking, jitteriness, desaturation during meals)	6
Hypoglycemia	1
Weightloss -10% or more	2
Jaundice	2
Skin rash	1

Symtoms week 2-8	N=13
Elevated liver enzymez	3
Inappropriate growth	6
Feeding problems	2
Hard to comfort	1
Reduced tone and tired	1