



Lacosamide

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CASRN: 175481-36-4

Drug Levels and Effects

Summary of Use during Lactation

Limited information indicates that a maternal dose of 200 mg daily produce low levels in milk. Although one infant who was exposed during pregnancy and breastfeeding was seepy and fed poorly, several others have been breastfed with no adverse effects. Development of exposed infants has been normal. Until more data are available lacosamide should only be used with careful monitoring for drowsiness and adequate weight gain during breastfeeding, especially while nursing a newborn or preterm infant.

Drug Levels

In published reports of anticonvulsant use during breastfeeding, most women were taking a combination of anticonvulsants. Some other anticonvulsants (e.g., phenytoin, carbamazepine) stimulate the metabolism of other drugs including anticonvulsants, whereas others (e.g., valproic acid) inhibit the metabolism of other drugs. Therefore, the relationship of the maternal dosage to the concentration in breastmilk can be quite variable, making calculation of the weight-adjusted percentage of maternal dosage less meaningful than for other drugs in this database.

Maternal Levels. A pregnant woman was treated with levetiracetam 1000 mg and lacosamide 100 mg twice daily as well as enoxaparin and labetalol for the rest of her pregnancy and postpartum. The lacosamide level in milk on day 5 postpartum (exact time unspecified) was 0.4 mg/L. The authors estimated that a fully breastfed infant would receive about 1.8% of the maternal weight-adjusted dosage.[1]

A woman took oral lacosamide 200 mg daily (dosage schedule not stated) throughout pregnancy and postpartum. At 20 days postpartum, breastmilk levels were 3.57 mg/L before the dose, 5.46 mg/L at 2 hours after the dose and 4.24 mg/L at 6 hours after the dose.[2]

An abstract reported that a relative infant dose of 29.9% was found in nursing mother(s) taking lacosamide, who provided 8 milk samples over 24 hours. The authors estimated that a breastfed infant could receive as much as 254% of the pediatric dose, but other details were not supplied.[3]

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A mother was taking lacosamide 200 mg twice daily as well as brivaracetam 100 mg twice daily and perampanel 8 mg daily. Her milk lacosamide levels were 21 micromoles/L (5.26 mg/L) on day 5 postpartum 12 hours after the previous dose and 25 micromoles/L (6.26 mg/L) on week 5 postpartum 13 hours after the previous dose.[4]

A postpartum woman was taking lacosamide 50 mg twice daily. Her dose was increased to 100 mg twice daily (3.6 mg/kg daily) and the following day, milk samples were collected 75 minutes before and 60, 115, 300, and 500 minutes after a dose. The trough value was 2.77 mg/L, and the post-dose values were 2.32 mg/L at 60 minutes, 4.69 mg/L at 115 minutes, 3.97 mg/L at 300 minutes and 3.19 mg/L at 500 minutes after administration. The authors estimated a relative infant dose of 14.6% of the maternal weight-adjusted dosage.[5]

Two breastfeeding women who were taking lacosamide had lacosamide levels measured in their milk. One woman who was taking a dose of 200 mg daily plus lamotrigine had milk levels of 6.6 and 3.2 mg/L at 3 and 4 days postpartum, respectively. The other woman taking lacosamide 400 mg daily plus levetiracetam had milk levels of 3.7 and 6.6 mg/L at 3 and 4 days postpartum, respectively.[6]

Infant Levels. A pregnant woman was treated with levetiracetam 1000 mg and lacosamide 100 mg twice daily as well as enoxaparin and labetalol for the rest of her pregnancy and postpartum. Her infant was delivered at 36 weeks gestation and about 50% breastfed for the first 15 days of life. The infant had a cord blood lacosamide concentration of 3.9 mg/L at birth and a lacosamide blood level of 0.3 mg/L on day 8 of age.[1]

A woman took lacosamide and levetiracetam throughout pregnancy and while exclusively breastfeeding her infant. From milk levels measured at 1 month postpartum, the infant's daily dosage of lacosamide was estimated to be 0.63 mg/kg daily via breastmilk. Although the relative dose was 22% of the maternal weight-adjusted dosage the absolute dosage is much lower than doses reportedly given for infantile seizures. Further details of the study were not available in the published abstract.[7]

A mother was taking lacosamide 200 mg twice daily as well as brivaracetam 100 mg twice daily and perampanel 8 mg daily. Her infant was exclusively breastfed and had serum lacosamide concentration of 9 micromoles/L (2.25 mcg/L) on day 1, 7 micromoles/L (1.75 mg/L) on day 5 and 8 micromoles/L (2 mg/L) in week 5 postpartum, which are just below the lower end of the therapeutic range. At week 11 postpartum, the infant was partially breastfed and lacosamide was undetectable (<3 micromoles/L; <750 mcg/L) in the infant's serum.[4]

A mother was taking lacosamide 200 mg daily during pregnancy and postpartum and exclusively breastfeeding her infant. A blood sample taken from the infant on day 1 of life contained 2.4 mg/L of lacosamide, reflecting transplacental passage. On day 10 of life, the infant had a serum lacosamide level of <1 mg/L.[8]

Two breastfeeding women taking lacosamide had serum lacosamide measured in both the mother and her infant. One infant whose mother was taking 400 mg daily plus lamotrigine had a serum level of 1.4 mg/L at 3 days postpartum, and an infant-to-maternal serum concentration ratio of 0.35 at 3 days postpartum. The other infant whose mother was taking lacosamide 200 mg daily plus levetiracetam had a serum level of 1.4 mg/L at 3 days postpartum, and an infant-to-maternal serum concentration ratio of 0.16 at 3 days postpartum.[6]

Effects in Breastfed Infants

A pregnant woman suffered blood clots in the sinuses and 2 small intracranial hemorrhages followed by status epilepticus at 8 weeks of gestation. She was treated with levetiracetam 1000 mg and lacosamide 100 mg twice daily as well as enoxaparin and labetalol for the rest of her pregnancy and postpartum. Her infant was delivered at 36 weeks gestation and about 50% breastfed for the first days of life. The infant was sleepy and fed poorly, but pauses in breastfeeding did not improve the infant's condition. Breastfeeding was discontinued at 15 days postpartum and the infant gradually improved. The infant showed normal development at 7 months of age.[1] Lacosamide and levetiracetam were probably the cause of the infant's sedation and poor feeding.

One center reported 3 mothers with epilepsy who took lacosamide while breastfeeding their infants. The extent of breastfeeding was not clearly stated, but one woman only partially breastfed her infant. The first mother took levetiracetam 2000 mg daily plus lacosamide 200 mg twice daily and breastfed her infant for 7 months with no infant adverse effects at 24 months of age. The second mother took lacosamide 300 mg daily and partially breastfed her infant for 8 months with normal developmental milestones at 6, 12 and 18 months of age. The third mother took lacosamide 400 mg daily and breastfed for 9 months without any feeding or alertness problems and no cognitive alterations or developmental delays at 36 months of age.[9]

A woman took lacosamide and levetiracetam throughout pregnancy and while exclusively breastfeeding her infant. Despite receiving a relatively high dose in breastmilk, the infant reportedly had achieved developmental milestones and had no health problems at 6 months postpartum.[7]

An infant was exclusively breastfed by a mother taking brivaracetam, lacosamide and perampanel for 6 weeks, then partially breastfed. The infant did not exhibit reduced wakefulness or feeding problems. At one year of age, the mother reported normal development.[4]

A mother was taking lacosamide 200 mg daily during pregnancy and postpartum. Her exclusively breastfed infant had no drug-related adverse events during the 9-month follow-up period.[8]

Three women taking lacosamide during pregnancy and lactation were reported by one center. One woman breastfed for 12 months while taking 200 mg twice daily. No medical problems or developmental delays were detected when the child was 12 months of age. The second woman breastfed for 6 months while taking 150 mg twice daily. Normal developmental milestones were reached at 12 months of age, and no health problems were detected. The third woman breastfed for 7 months while taking 200 mg twice daily. No medical issues or developmental delays were identified when the child reached the age of four years of age.[10]

Effects on Lactation and Breastmilk

Relevant published information was not found as of the revision date.

Alternate Drugs to Consider

(Seizure Disorder) Carbamazepine, Divalproex, Gabapentin, Lamotrigine, Oxcarbazepine, Phenytoin, Valproic Acid

References

1. Ylikotila P, Ketola RA, Timonen S, et al. Early pregnancy cerebral venous thrombosis and status epilepticus treated with levetiracetam and lacosamide throughout pregnancy. *Reprod Toxicol* 2015;57:204-6. PubMed PMID: 26187779.
2. Zarubova J, Kremlackova V, Borecka K, Marusic P. Plasma and breast milk levels of lacosamide before, during and post pregnancy. *Epilepsia* 2016;57:69. doi:10.1111/epi.13609
3. Monfort A, Jutras M, Martin B, et al. New data on the transfer of untested medication into breast milk. *Birth Defects Res* 2021;113:831. doi:10.1002/bdr2.1928
4. Landmark CJ, Rektorli L, Burns ML, et al. Pharmacokinetic data on brivaracetam, lacosamide and perampanel during pregnancy and lactation. *Epileptic Disord* 2021;23:426-31. PubMed PMID: 33935028.
5. Furugen A, Nishimura A, Umazume T, et al. Simple and validated method to quantify lacosamide in human breast milk and plasma using UPLC/MS/MS and its application to estimate drug transfer into breast milk. *J Pharm Health Care Sci* 2023;9:26. PubMed PMID: 37653499.
6. Kacirova I, Urinovska R, Grundmann M. Therapeutic monitoring of lacosamide, perampanel, and zonisamide during breastfeeding. *Epilepsy Res* 2024;199:107264. PubMed PMID: 38041996.
7. Kohn E, Dinavitsier N, Gandelman-Marton R, et al. Lacosamide levels in blood and breastmilk during pregnancy and lactation: A case report. *Reprod Toxicol* 2020;97:9-10.

8. Cercos M, Seqat I, Facile A, et al. Lacosamide use during breastfeeding: A case report and a literature review. *Fundam Clin Pharmacol* 2023. PubMed PMID: 38054544.
9. Lattanzi S, Cagnetti C, Foschi N, et al. Lacosamide during pregnancy and breastfeeding. *Neurol Neurochir Pol* 2017;51:266-9. PubMed PMID: 28385340.
10. Bosak M, Dziedzic R, Matwiej K, Słowik A. Outcomes following exposure to lacosamide monotherapy during pregnancy and breastfeeding - a prospective case series. *Neurol Neurochir Pol* 2024. PubMed PMID: 38305480.

Substance Identification

Substance Name

Lacosamide

CAS Registry Number

175481-36-4

Drug Class

Breast Feeding

Lactation

Milk, Human

Anticonvulsants