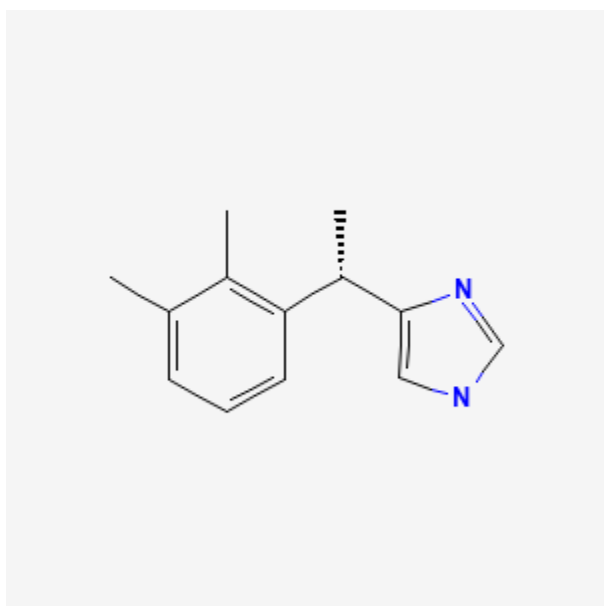




## Dexmedetomidine

Revised: June 15, 2024.

CASRN: 113775-47-6



## Drug Levels and Effects

### Summary of Use during Lactation

Limited data indicate that very small amounts of dexmedetomidine are excreted into breastmilk for 4 to 6 hours after the end of an intravenous infusion. The drug is absent from breastmilk by 24 hours after the end of an infusion. The amounts in milk after sublingual use are expected to be less than after intravenous infusion. Because of the low dose in milk and its poor oral bioavailability, dexmedetomidine would not be expected to cause adverse effects in breastfed infants or neonates. Monitor the breastfed infant for irritability during sublingual use.

**Disclaimer:** Information presented in this database is not meant as a substitute for professional judgment. You should consult your healthcare provider for breastfeeding advice related to your particular situation. The U.S. government does not warrant or assume any liability or responsibility for the accuracy or completeness of the information on this Site.

**Attribution Statement:** LactMed is a registered trademark of the U.S. Department of Health and Human Services.

## Drug Levels

*Maternal Levels.* Following delivery by cesarean section, 4 women were given dexmedetomidine by continuous infusion 6 mcg/kg/hour for 10 minutes, followed by a dose of 0.2 to 0.7 mcg/kg/hour until closure of the incision, with total dosages ranging from 60 to 75 mcg. Breastmilk samples were collected at 0, 6 and 24 hours after the end of the infusion. The mean breastmilk dexmedetomidine concentration at the end of the infusion was 578 ng/L (range 390 to 594 ng/L). Dexmedetomidine was detected in human breast milk in 3 of the subjects 6 hours after discontinuation of dexmedetomidine, with an average of 24 ng/L. The drug was undetectable (<3 ng/L) in 1 breastmilk sample at 6 hours and in all samples at 24 hours after discontinuation. The authors calculated a weight-adjusted percentage of maternal dosage ranging from 0.04 to 0.098%. [1]

The same authors collected colostrum samples from 10 women at 6, 12 and 24 hours after returning to their ward after receiving dexmedetomidine for cesarean section delivery. Dexmedetomidine was given by continuous infusion 6 mcg/kg/hour for 10 minutes, followed by a dose of 0.7 mcg/kg/hour until closure of the incision. At 6 hours, two women had undetectable dexmedetomidine levels in colostrum, while the other 8 had dexmedetomidine levels ranging from 8.1 to 30.4 ng/L (median 12 ng/L). At 12 hours only one woman had dexmedetomidine detectable at 13.6 ng/L. Dexmedetomidine was undetectable in all women at 24 hours. The authors calculated a relative infant dose range of 0.02-0.062%. [2]

A nursing mother who was 4 weeks postpartum underwent a craniotomy for resection of a brain tumor. She was sedated with dexmedetomidine in a dose of 45 mcg followed by an infusion of 0.7 to 1 mg/kg/hour using a dosing weight of 95.6 kg, as well as propofol, and fentanyl. Complete milk collections with a breast pump and manual expression were collected every 3 to 4 hours during the procedure with the help of a lactation consultant. Intraoperative milk levels were 50 and 88 ng/L and postoperative levels about 48 minutes and 4 hours after discontinuation of the dexmedetomidine infusion were 89 and 15 ng/L, respectively. The authors noted that the dose in breastmilk is about 10% of the dose given intravenously to neonates. [3]

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

## Effects in Breastfed Infants

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

## Effects on Lactation and Breastmilk

A double-blind study randomized 160 women receiving an elective cesarean section under spinal anesthesia to receive either sufentanil for patient-controlled intravenous analgesia (standard care) or standard care plus dexmedetomidine. Dexmedetomidine was given as 5 mcg/kg, followed by a continuous infusion of 0.5 mcg/kg per hour until the end of surgery. Patient in this latter group received dexmedetomidine plus sufentanil for patient-controlled intravenous analgesia postoperatively for 2 days. Patients who received dexmedetomidine had a shorter time to the first lactation (28 vs 34 hours), achieved exclusive breastfeeding sooner (8 vs 11 days) and had a greater amount of milk on the second day postpartum. [4]

In a retrospective study of women undergoing cesarean section deliveries, 3 regimens were compared: dexmedetomidine before anesthesia and during delivery (n = 115), normal saline before anesthesia and during delivery and dexmedetomidine after delivery (n = 109), and normal saline before anesthesia and during delivery (n = 168). Women who received dexmedetomidine before anesthesia and during delivery consumed less sufentanil and ondansetron during their hospitalization and had a slightly shorter time to the first production of milk than women in the other groups (25 minutes vs 27 to 28 minutes). [5]

## Alternate Drugs to Consider

(Intravenous Sedation) Etomidate, Methohexital, Midazolam, Propofol

## References

1. Nakanishi R, Yoshimura M, Suno M, et al. Detection of dexmedetomidine in human breast milk using liquid chromatography-tandem mass spectrometry: Application to a study of drug safety in breastfeeding after Cesarean section. *J Chromatogr B Analyt Technol Biomed Life Sci* 2017;1040:208-13. PubMed PMID: 27856195.
2. Yoshimura M, Kunisawa T, Suno M, et al. Intravenous dexmedetomidine for cesarean delivery and its concentration in colostrum. *Int J Obstet Anesth* 2017;32:28-32. PubMed PMID: 28687146.
3. Dodd SE, Hunter Guevara LR, Datta P, et al. Dexmedetomidine levels in breast milk: Analysis of breast milk expressed during and after awake craniotomy. *Breastfeed Med* 2021;16:919-21. PubMed PMID: 34143658.
4. Wang Y, Fang X, Liu C, et al. Impact of intraoperative infusion and postoperative PCIA of dexmedetomidine on early breastfeeding after elective cesarean section: A randomized double-blind controlled trial. *Drug Des Devel Ther* 2020;14:1083-93. PubMed PMID: 32210537.
5. Zhao W, Ma L, Wang J, et al. Retrospective comparison of the safety and effectiveness of dexmedetomidine versus standard of care before and during cesarean delivery in a maternity unit in Zhengzhou, China. *Med Sci Monit* 2020;26:e925709. PubMed PMID: 33097682.

## Substance Identification

### Substance Name

Dexmedetomidine

### CAS Registry Number

113775-47-6

### Drug Class

Breast Feeding

Lactation

Milk, Human

Hypnotics and Sedatives

Anesthetics, Intravenous

Adrenergic alpha-2 Receptor Agonists

Analgesics