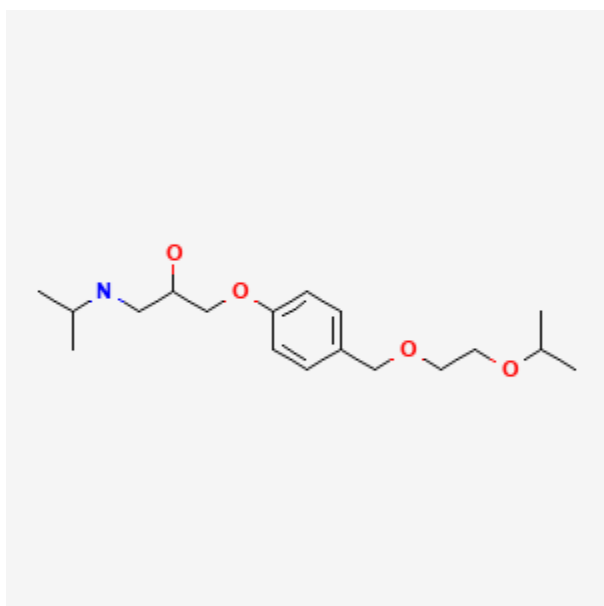




Bisoprolol

Revised: August 15, 2023.

CASRN: 66722-44-9



Drug Levels and Effects

Summary of Use during Lactation

Limited information indicates that a maternal dose of 5 mg daily produces low levels in milk and some follow-up data indicate no adverse long-term effects on the breastfed infant. If bisoprolol is required by the mother, it is not a reason to discontinue breastfeeding. Other beta-blockers with more safety data may be preferred.

Drug Levels

The excretion of beta-adrenergic blocking drugs into breastmilk is largely determined by their protein binding. Those with low binding are more extensively excreted into breastmilk.[1] Accumulation of the drugs in the infant is related to the fraction excreted in urine. With 30% protein binding, 50% renal excretion and a

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moderately long half-life, bisoprolol presents a moderately high risk for accumulation in infants, especially neonates. No published studies could be located that measured bisoprolol in human milk or the serum of breastfed infants.

Maternal Levels. A woman was admitted at 36 weeks of pregnancy with complete heart block followed by ventricular tachycardia and fibrillation. After stabilization, she was given several doses of amiodarone and begun on bisoprolol 5 mg daily by mouth on day 9 of admission. She pumped her milk and provided 6 aliquots over a 6 day period (time with respect to dosage not stated). Bisoprolol was undetectable (<1 mcg/L) in all samples.[2]

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

Effects in Breastfed Infants

A woman was diagnosed with Cushing's disease during pregnancy. Postpartum she took metyrapone 250 mg 3 times daily, bisoprolol 10 mg twice daily, and captopril 12.5 mg twice daily. She breastfed her preterm infant about 50% milk and 50% formula. At 5 weeks postpartum, the infant's pediatric team found his growth and development to be appropriate.[3]

A prospective study followed 11 women who were taking bisoprolol in a median dose was 2.5 mg daily (range 1 to 5 mg) during breastfeeding (8 exclusively). The median age of the child at the time of follow-up was 49 (IRQ 25.5 to 58.5) months. Adverse effects were reported among 2 infants: 1 with somnolence and 1 with poor weight gain. No abnormal results were found by Denver developmental scale. Median psychomotor development according to PEDsQL score total 97.5, psychosocial health 97.9 and physical health 100, all representing normal development.[4]

Effects on Lactation and Breastmilk

A study in 6 patients with hyperprolactinemia and galactorrhea found no changes in serum prolactin levels following beta-adrenergic blockade with propranolol.[5] Relevant published information on the effects of beta-blockade or bisoprolol during normal lactation was not found as of the revision date.

Alternate Drugs to Consider

Propranolol, Labetalol, Metoprolol

References

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3. Duke ME, Britten FL, Pretorius CJ, et al. Maternal metyrapone use during breastfeeding: Safe for the breastfed infant. *J Endocr Soc* 2019;3:973-8. PubMed PMID: 31041428.
4. De-Haan T, Hazan A, Kaduri NB, et al. Bisoprolol during breastfeeding: A prospective case series. *Neurotoxicol Teratol* 2023;98. doi:10.1016/j.ntt.2023.107232
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Substance Identification

Substance Name

Bisoprolol

CAS Registry Number

66722-44-9

Drug Class

Breast Feeding

Lactation

Milk, Human

Antihypertensive Agents

Adrenergic Beta-Antagonists

Antiarrhythmics