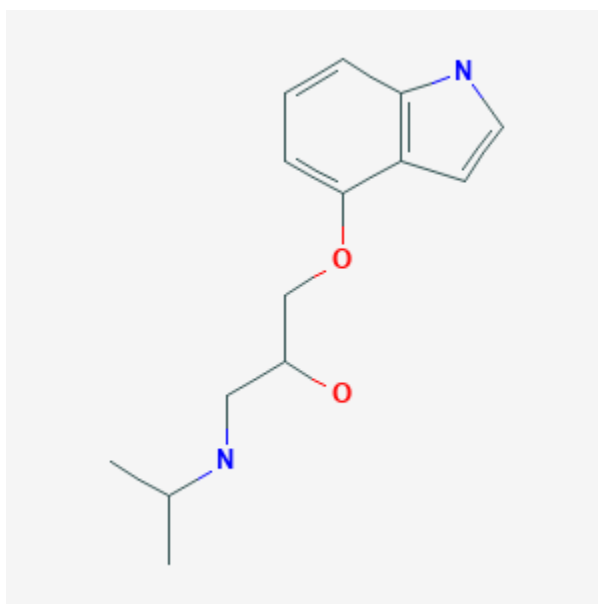




## Pindolol

Revised: October 31, 2018.

CASRN: 13523-86-9



## Drug Levels and Effects

### Summary of Use during Lactation

Recommendation for Use During Lactation: Limited information indicates that maternal pindolol produces low levels in milk. It also has a short half-life and only moderate renal excretion, so it would not be expected to cause any adverse effects in breastfed infants, especially if the infant is older than 2 months.

### 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 60% protein binding, 40% renal excretion and a half-life

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of 3 hours, pindolol presents moderately low risk for accumulation in infants. Pindolol is administered as a racemic mixture, but the (-)-S enantiomer has much more activity than the (+)-R enantiomer.[2]

*Maternal Levels.* Three women were receiving pindolol 10 mg every 12 hours during pregnancy and postpartum. A single breastmilk sample was collected from each mother on the day of delivery at 11, 12 or 14 hours after the previous pindolol dose. The 2 pindolol enantiomers were measured separately in milk, with (-)-S-pindolol concentration averaging 3.1 mcg/L (range 1.5 to 3.9 mcg/L) and (+)-R-pindolol averaging 1.9 mcg/L (range 1.2 to 4.2 mcg/L).[2] Using the AUC and milk/plasma ratio values reported, a fully breastfed infant would receive an average of 0.36% of the maternal weight-adjusted dosage of pindolol.

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

## Effects in Breastfed Infants

Relevant published information on pindolol was not found as of the revision date. A study of mothers taking beta-blockers during nursing found a numerically, but not statistically significant increased number of adverse reactions in those taking any beta-blocker. Although the ages of infants were matched to control infants, the ages of the affected infants were not stated. None of the mothers were taking pindolol.[3]

## Effects on Lactation and Breastmilk

Relevant published information on the effects of beta-blockade or pindolol during normal lactation was not found as of the revision date. A study in 6 patients with hyperprolactinemia and galactorrhea found no changes in serum prolactin levels following beta-adrenergic blockade with propranolol.[4]

## Alternate Drugs to Consider

Propranolol, Labetalol, Metoprolol

## References

1. Riant P, Urien S, Albengres E et al. High plasma protein binding as a parameter in the selection of betablockers for lactating women. *Biochem Pharmacol.* 1986;35:4579-81. PubMed PMID: 2878668.
2. Goncalves PV, Cavalli RC, Cunha SP, Lanchote VL. Determination of pindolol enantiomers in amniotic fluid and breast milk by high-performance liquid chromatography: applications to pharmacokinetics in pregnant and lactating women. *J Chromatogr B Analyt Technol Biomed Life Sci.* 2007;852:640-5. PubMed PMID: 17307403.
3. Ho TK, Moretti ME, Schaeffer JK et al. Maternal beta-blocker usage and breast feeding in the neonate. *Pediatr Res.* 1999;45:67A. Abstract 385.
4. Board JA, Fierro RJ, Wasserman AJ et al. Effects of alpha- and beta-adrenergic blocking agents on serum prolactin levels in women with hyperprolactinemia and galactorrhea. *Am J Obstet Gynecol.* 1977;127:285-7. PubMed PMID: 556882.

## Substance Identification

### Substance Name

Pindolol

### CAS Registry Number

13523-86-9

## Drug Class

Breast Feeding

Lactation

Antihypertensive Agents

Adrenergic Beta-Antagonists

Antiarrhythmics