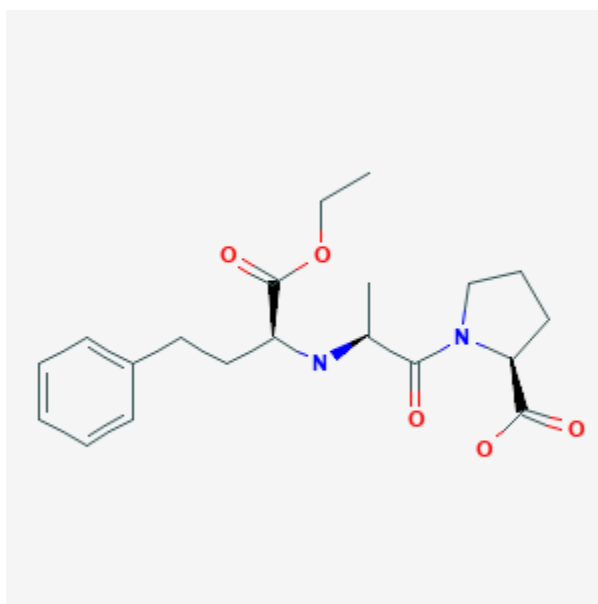




Enalapril

Revised: February 28, 2019.

CASRN: 75847-73-3



Drug Levels and Effects

Summary of Use during Lactation

Because of the low levels of enalapril in breastmilk, amounts ingested by the infant are small and would not be expected to cause any adverse effects in breastfed infants.

Drug Levels

Enalapril is an inactive drug that is metabolized to the active metabolite enalaprilat. Enalaprilat is poorly absorbed orally.

Maternal Levels. One mother taking a single oral dose of enalapril 5 mg and 2 mothers taking a single dose 10 mg 3 to 45 days postpartum had undetectable enalaprilat milk levels (<0.2 mcg/L) 4 hours after a single dose;

enalapril levels were not determined. The angiotensin converting enzyme activity in milk of all women was within the normal range and unchanged after the dose compared to the predose values.[1]

A woman who had been taking oral enalapril 10 mg daily for 11 months had peak enalapril milk levels of 2 mcg/L 4 hours after a dose and peak enalaprilat levels of 0.75 mcg/L about 9 hours after the dose.[2]

Enalapril and enalaprilat milk levels were determined in 5 women who were in the immediate postpartum period and not breastfeeding. After a single 20 mg oral dose, the average peak enalapril milk level was 1.7 mcg/L (range 0.54 to 5.9 mcg/L) at 4 to 6 hours after the dose. Enalapril was not detectable (assay limit not specified) after 4 hours in 4 of the 5 women. The average peak enalaprilat level was 1.7 mcg/L (range 1.2 to 2.3 mcg/L); peaks occurred at various times over the 24-hour period. The authors estimated that a breastfed infant would receive less than 2 mcg/day of enalaprilat.[3] Using the peak milk level data, the estimated maximum intake of an exclusively breastfed infant would be about 0.16% of the maternal weight-adjusted dosage, half as enalaprilat.

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

Effects in Breastfed Infants

None reported in 4 breastfed infants whose mothers were taking oral enalapril 5 to 10 mg daily.[1][2]

Effects on Lactation and Breastmilk

In 15 postmenopausal hypertensive women (prior lactation status not stated), serum prolactin levels were decreased by 22% compared to placebo after enalapril 20 mg once daily for 15 days.[4] The maternal prolactin level in a mother with established lactation may not affect her ability to breastfeed.

A woman with pre-eclampsia was treated was started at term with oral enalapril 10 mg daily. Her milk came in on day 3 postpartum and she had no difficulties with nursing during 5 weeks of observation.[5]

Alternate Drugs to Consider

Benazepril, Captopril, Quinapril

References

1. Huttunen K, Gronhagen-Riska C, Fyhrquist F. Enalapril treatment of a nursing mother with slightly impaired renal function. *Clin Nephrol.* 1989;31:278. Letter. PubMed PMID: 2544326.
2. Rush JE, Snyder DL, Barrish A et al. Comment on Huttunen K, Gronhagen-Riska C, Fyrquist F. Enalapril treatment of a nursing mother with slightly impaired renal function. *Clin Nephrol.* 1989;31:278. *Clin Nephrol.* 1991;35:234. Letter. PubMed PMID: 1649713.
3. Redman CWG, Kelly JG, Cooper WD. The excretion of enalapril and enalaprilat in human breast milk. *Eur J Clin Pharmacol.* 1990;38:99. PubMed PMID: 2158450.
4. Lombardi C, Missale C, De Cotiis R et al. Enalapril decreases plasma prolactin levels in hypertensive patients. *J Biol Regul Homeost Agents.* 1989;3:128-30. PubMed PMID: 2560316.
5. Bach N. [Enalapril treatment of a pre-eclamptic woman]. *Ugeskr Laeger.* 1995;157:1203-4. PubMed PMID: 7701668.

Substance Identification

Substance Name

Enalapril

CAS Registry Number

75847-73-3

Drug Class

Breast Feeding

Lactation

Antihypertensive Agents

Angiotensin-Converting Enzyme Inhibitors

ACE Inhibitors

ACEIs