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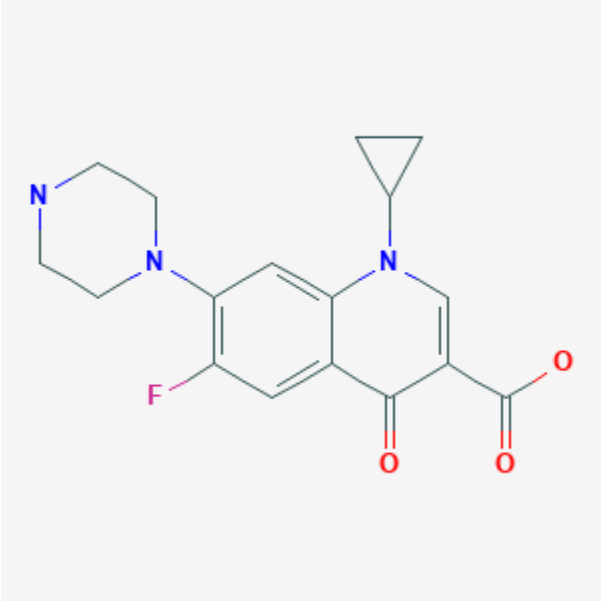
Ciprofloxacin

Revised: October 31, 2018.

CASRN: 85721-33-1



Drug Levels and Effects

Summary of Use during Lactation

Amounts of ciprofloxacin in breastmilk are low. Fluoroquinolones such as ciprofloxacin have traditionally not been used in infants because of concern about adverse effects on the infants' developing joints. However, studies indicate little risk.[1] The calcium in milk might decrease absorption of the small amounts of fluoroquinolones in milk,[2] but, insufficient data exist to prove or disprove this assertion. Use of ciprofloxacin is acceptable in nursing mothers with monitoring of the infant for possible effects on the gastrointestinal flora, such as diarrhea or candidiasis (thrush, diaper rash). Avoiding breastfeeding for 3 to 4 hours after a dose should decrease the exposure of the infant to ciprofloxacin in breastmilk.

Maternal use of an ear drop or eye drop that contains ciprofloxacin presents negligible risk for the nursing infant. To substantially diminish the amount of drug that reaches the breastmilk after using eye drops, place

pressure over the tear duct by the corner of the eye for 1 minute or more, then remove the excess solution with an absorbent tissue.

Drug Levels

Maternal Levels. Ten lactating women (time postpartum not stated) were given ciprofloxacin 750 mg orally every 12 hours for 3 doses. Milk ciprofloxacin was measured after the third dose. The highest levels averaging 3.79 mg/L occurred 2 hours after the dose. Average milk levels then fell as follows: 2.26 mg/L at 4 hours; 0.86 mg/L at 6 hours, 0.51 mg/L at 9 hours; 0.2 mg/L at 12 hours; and 0.02 mg/L at 24 hours after the dose.[3] Using the peak milk level data from this study, an exclusively breastfed infant would receive an estimated maximum of 0.57 mg/kg daily with this maternal dosage regimen. This dosage is much lower than the 10 to 40 mg/kg daily used in treating newborn infants.[1]

One mother who was recovering from acute renal failure was given a single dose of ciprofloxacin 500 mg orally with a prenatal vitamin and ferrous sulfate which would be expected to decrease ciprofloxacin bioavailability. Milk levels were 3.5 mg/L at 4, 8 and 12 hours after the dose and 2.3 mg/L 16 hours after the dose.[4] Levels were probably elevated and elimination prolonged by the woman's impaired renal function.

A woman took ciprofloxacin 500 mg daily orally for 10 days. At 10 hours and 40 minutes after the last dose, ciprofloxacin was 0.98 mg/L in breastmilk.[5]

Infant Levels. A woman took ciprofloxacin 500 mg daily orally for 10 days. Her infant, who breastfed once 8 hours after the dose, had no detectable ciprofloxacin (<30 mcg/L) in her serum 2.7 hours after nursing.[5]

Effects in Breastfed Infants

A case of pseudomembranous colitis in a 2-month-old breastfed infant with a history of necrotizing enterocolitis was probably caused by maternal self-treatment with ciprofloxacin.[6]

Ciprofloxacin was used as part of multi-drug regimens to treat three pregnant women with multidrug-resistant tuberculosis throughout pregnancy and postpartum. Their three infants were breastfed (extent and duration not stated). At age 1.25, 1.8 and 3.9 years, the children were developing normally except for one who had failure to thrive, possibly due to tuberculosis contracted after birth.[7]

Effects on Lactation and Breastmilk

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

Alternate Drugs to Consider

(Urinary Tract) Levofloxacin, Nitrofurantoin, Trimethoprim; (Ophthalmic) Levofloxacin, Ofloxacin

References

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Substance Identification

Substance Name

Ciprofloxacin

CAS Registry Number

85721-33-1

Drug Class

Breast Feeding

Lactation

Anti-Infective Agents

Antibacterial Agents

Quinolones

Fluoroquinolones