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NLM Citation: Drugs and Lactation Database (LactMed) [Internet]. Bethesda (MD): National Library of Medicine (US); 2006-. Thyroid. [Updated 2018 Dec 3].
Bookshelf URL: https://www.ncbi.nlm.nih.gov/books/

Thyroid

Revised: December 3, 2018.

CASRN: 8028-36-2

Drug Levels and Effects

Summary of Use during Lactation

Thyroid is an animal-derived mixture of levothyroxine (T4) and liothyronine (T3), which are normal components of human milk. Limited data on exogenous replacement doses of levothyroxine during breastfeeding indicate no adverse effects in infants. If thyroid is required by the mother, it is not a reason to discontinue breastfeeding. The American Thyroid Association recommends that subclinical and overt hypothyroidism should be treated with levothyroxine in lactating women seeking to breastfeed.[1] Thyroid dosage requirement may be increased in the postpartum period compared to prepregnancy requirements patients with Hashimoto's thyroiditis.[2]

Drug Levels

Although somewhat controversial, it appears that levothyroxine passes into milk poorly and that liothyronine might pass into milk in amounts that affect infant thyroid status.[3][4][5][6][7]

Maternal Levels. In a study of 56 mothers with thyroid disorders, 50 had hypothyroidism and were being treated with levothyroxine; 5 mothers had controlled hyperthyroidism with no medications and 1 had hyperthyroidism treated with a medication. Milk levels of thyroid hormones were free T4 4.5 ng/L, total T4 29.6 mcg/L, free T3 2.3 ng/L and total T3 0.35 mcg/L. The average milk to serum level ratios over the period were free T4 0.32, total T4 0.3, free T3 0.78 and total T3 0.26. Levels of free and total T3 and total T4 in milk were positively correlated with their respective plasma levels.[8]

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

Effects in Breastfed Infants

Effects of exogenous thyroid hormone administration to mothers on their infant have not been reported. One case of apparent mitigation of cretinism in hypothyroid infants by breastfeeding has been reported, but the amounts of thyroid hormones in milk are not optimal,[9] and this result has been disputed.[10] The thyroid hormone content of human milk from the mothers of very preterm infants appears not to be sufficient to affect

the infants' thyroid status.[11] The amounts of thyroid hormones in milk are apparently not sufficient to interfere with diagnosis of hypothyroidism.[12]

In a telephone follow-up study, 5 nursing mothers reported taking levothyroxine (dosage unspecified). The mothers reported no adverse reactions in their infants.[13]

One mother with who had undergone a thyroidectomy was taking levothyroxine 100 mcg daily as well as calcium carbonate and calcitriol. Her breastfed infant was reportedly "thriving" at 3 months of age.[14]

Effects on Lactation and Breastmilk

Adequate thyroid hormone serum levels are required for normal lactation. Replacing deficient thyroid levels should improve milk production caused by hypothyroidism. Supraphysiologic doses would not be expected to further improve lactation.

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Substance Identification

Substance Name

Thyroid

CAS Registry Number

8028-36-2

Drug Class

Breast Feeding

Lactation

Thyroid Hormones