



Chocolate

Revised: September 19, 2022.

CASRN: 84649-99-0

Drug Levels and Effects

Summary of Use during Lactation

Chocolate contains small amounts of caffeine and larger amounts of the closely related compound, theobromine. It also contains anandamide and two related compounds that stimulate cannabinoid receptors, tryptophan, and polyphenols.[1,2] All of these compounds are detectable in breastmilk in small amounts. Low intake of chocolate by a nursing mother is not problematic, but extreme amounts can affect the infant.

Cacao butter, which is derived from *Theobroma cacao*, was found to be superior to mother's milk when applied to the nipples during the first 10 days postpartum. Nipple pain, rashes, and cracks were less frequent in the cacao butter group.[3]

Drug Levels

Maternal Levels. Six nursing mothers ingested 113 grams of Hershey's milk chocolate containing 240 mg of theobromine. Peak milk theobromine levels averaging 5.3 mg/L occurred at an average of 2.7 hours (range 2.1 to 3.3 hours) after ingestion. The authors estimated that if a woman ate a 4 ounce chocolate bar every 6 hours and her infant ingested 1 liter of milk daily, nursing when the concentration of theobromine in milk was at a peak, the infant could be exposed to about 10 mg theobromine or about 1 to 2 mg/kg daily.[4]

Two lactating women collected milk with a pump for 12 hours following ingestion of chocolate containing 80 mg of flavan-3-ols (polyphenols) of which 39 mg was epicatechin. The mothers excreted 0.0048% of the dose of epicatechin as epicatechin and its metabolites. In 11 other mothers who had a varied and uncontrolled diet, cocoa and cocoa products provided 30% of the flavan-3-ols and about 40% of the epicatechin consumed in their usual diet. In 8 of these mothers, 10 mg of flavan-3-ols were excreted into colostrum daily of which 5 mg was epicatechin. In the 11 women, mature milk contained 5.9 mg of flavan-3-ols of which 2.7 mg was epicatechin.[2]

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

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Effects in Breastfed Infants

Jitteriness in a 6-week-old breastfed infant reported by a mother who claimed to drink 4 to 5 cups of coffee and 2 to 3 bottles (about 480 mL each) of cola daily as well as occasional tea and cocoa. Upon examination, the infant was gaining weight appropriately, but had trembling and increased muscle tone. The infant's symptoms decreased markedly 2 weeks after his mother stopped all caffeine-containing beverages.[5]

A newborn infant developed irritability and jitteriness at 12 hours of life. All laboratory values were normal. The symptoms continued of the following days, accompanied by inconsolable crying, excessive sucking and sleep disturbances. Treatment with phenobarbital for 1 week did not modify symptoms. The mother did not drink coffee, but was eating about 250 grams of cocoa and chocolate daily during pregnancy and nursing. She tapered her chocolate intake over 10 days and symptoms in the infant began to diminish. Behavior was normal by 40 days of age and at 8 months of age, psychomotor development was normal.[6]

A group of dermatologists in Japan reported that of 92 exclusively breastfed infants with atopic dermatitis that they tested, 18 had positive challenges to chocolate.[7]

Effects on Lactation and Breastmilk

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

References

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Substance Identification

Substance Name

Chocolate

CAS Registry Number

84649-99-0

Drug Class

Breast Feeding

Lactation

Milk, Human

Cocoa Plant

Cocoa Powder

Theobroma cacao