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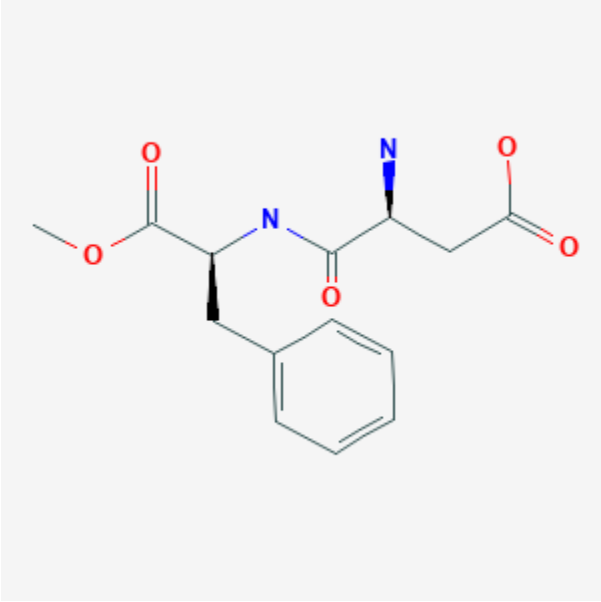
Aspartame

Revised: February 7, 2019.

CASRN: 22839-47-0



Drug Levels and Effects

Summary of Use during Lactation

Aspartame is not detectable in breastmilk after maternal ingestion because it is rapidly broken down in the mother's body. An extremely large intake of aspartame (equivalent to 17 cans of soda or 100 packets of Equal Sweetener) can slightly increase the amount of phenylalanine in breastmilk. Phenylalanine concentrations in milk return to baseline by 12 hours after a large single dose of aspartame. Although it is prudent to avoid the use of aspartame in women who are nursing an infant with phenylketonuria, amounts that are typically ingested in aspartame-sweetened foods and beverages do not result in any additional risk to breastfed infants with phenylketonuria.

Drug Levels

Aspartame is rapidly metabolized in the body to 2 amino acids that occur naturally in breastmilk, aspartic acid and phenylalanine.

Maternal Levels. Six lactating women an average of 98 days postpartum (range 42 to 159 days) were given aspartame or lactose orally in a dose of 50 mg/kg (equivalent to 17 aspartame-sweetened sodas or 100 packets of Equal in a 68 kg [150 lb] adult[1]) on 2 separate occasions 2 weeks apart in a randomized crossover trial. Breastmilk samples were collected over the next 24 hours. Breastmilk phenylalanine levels increased to a maximum of about 6 mg/L between 1 and 8 hours after the dose of aspartame and returned to baseline by about 12 hours after the dose. Lactose had no effect on breastmilk phenylalanine levels. Aspartame was not detected (<1.4 mg/L) in breastmilk at any time. The authors calculated that if the milk phenylalanine concentration were elevated for 24 hours to the maximum found in this study, a fully breastfed infant would receive an additional 0.5 mg/kg daily above the normal intake of 79 mg/kg of phenylalanine that occurs naturally in breastmilk.[2]

Twenty lactating women completed background questionnaires about breastfeeding and the intake of nonnutritive sweeteners in the prior 24 hours. Each then donated a milk sample that was analyzed for the presence of nonnutritive sweeteners. Sweetener intake was primarily from diet sodas and sweetener packets. Of the 14 women who reported intake of a nonnutritive sweetener, none had quantifiable levels of aspartame in their breastmilk.[3]

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

Effects in Breastfed Infants

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

Effects on Lactation and Breastmilk

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

References

1. Franz M. Is it safe to consume aspartame during pregnancy? A review. Nutrition update. Diabetes Educ. 1986;12:145-7. PubMed PMID: 3634700.
2. Stegink LD, Filer LJ Jr, Baker GL. Plasma, erythrocyte and human milk levels of free amino acids in lactating women administered aspartame or lactose. J Nutr. 1979;109:2173-81. PubMed PMID: 512705.
3. Sylvetsky AC, Gardner AL, Bauman V et al. Nonnutritive sweeteners in breast milk. J Toxicol Environ Health A. 2015;78:1029-32. PubMed PMID: 26267522.

Substance Identification

Substance Name

Aspartame

CAS Registry Number

22839-47-0

Drug Class

Breast Feeding

Lactation

Artificial Sweeteners

Sweetening Agents