

UKMi Q&A 98.5

Proton-pump-inhibitors for treatment of reflux in a breastfeeding mother: which is preferred?

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Background

Gastro-oesophageal reflux and heartburn affect between 45 and 85% of women during pregnancy. Symptoms typically resolve post partum, but some women may require active treatment [1,2]. A number of treatment options are available, with the proton pump inhibitors (PPIs) being the most effective agents [2, 3].

Answer

Omeprazole

One single case study found that omeprazole passes into breast milk, but amounts are thought to be small. The maternal dose was 20 mg taken in the morning. Breastfeeding was withheld until four hours after the dose, when milk was expressed and discarded. Three weeks following the delivery blood and breast milk samples were collected from 8am every 30 minutes for four hours. Maternal plasma concentrations of omeprazole were negligible until 90 minutes after the dose, and reached 950nM (950 picomol/ml) at 240 minutes. Milk concentrations began to rise 90 minutes after the dose, and peaked at 58nM (58 picomol/ml) at 180 minutes, which was less than 7% of the peak maternal serum concentration. The infant was weaned after three months and was reported to be doing well at twelve months of age [2].

Omeprazole, like all PPIs is acid-labile with a very short half-life (10 minutes) and a pH of less than 4 [6]. Therefore, most of the dose that is ingested by an infant via breast milk is probably destroyed by the acid in the stomach and not available for absorption [2, 4].

The manufacturer advises that omeprazole is unlikely to influence the infant's development when used in lactation at therapeutic doses [5].

Pantoprazole

One single-dose study found small amounts of pantoprazole in breast milk after oral administration of 40 mg. Maternal plasma concentrations peaked at 1.65 microgram/mL at 2 hours. Breast milk levels were undetectable, except at 2 and 4 hours (36 nanogram/mL and 24 nanogram/mL respectively). The calculated infant dose was 7.3 micrograms of pantoprazole, based on a milk consumption of 200 mL at peak time. This equates to 0.14% of the weight-adjusted maternal [6]. The infant was not breastfed during this study.

Since pantoprazole is rapidly destroyed at gastric pH the systemic dose received by the infant is thought to be lower than the calculated dose above. The authors conclude that chronic treatment with pantoprazole may not be a reason to stop breastfeeding, since pharmacokinetics are similar after single- and multiple-dose administration [6]. The SPC advises to only use pantoprazole during lactation if the maternal benefit outweighs the risk to the infant [7].

Esomeprazole

No studies measuring breast-milk concentration of esomeprazole in humans have been published. The effect on a breastfed infant is unknown. However since it is the S-isomer of omeprazole, breast milk excretion and effect on the breastfed infant are likely to be similar to omeprazole [8]. The SPC advises not to use esomeprazole during lactation [9].

Lansoprazole

No studies measuring breast-milk concentrations of lansoprazole in humans have been published. Due to its structural and pharmacokinetic similarity to omeprazole, amounts found in breast milk are thought to be small, and the majority is probably also destroyed by the acid in the infants stomach. The SPC advises to only use lansoprazole during lactation if the maternal benefit outweighs the risk to the infant [10].

Rabeprazole

No information is available on excretion into human milk. The SPC advises to avoid the use of rabeprazole during lactation [11].

Summary

- ◆ There is limited experience with the use of omeprazole and pantoprazole during lactation. Milk levels for both drugs are low, and in addition a large proportion of any of the drug ingested by the infant is likely to be destroyed by the acid in the stomach. No adverse events were reported in one case report of an infant exposed to omeprazole via breast milk. There are no data on long-term outcome.
- ◆ If a PPI is regarded necessary during lactation, limited data support the use of omeprazole or pantoprazole, and an influence on a breastfed child's development is unlikely.
- ◆ There are no data available regarding use of lansoprazole, rabeprazole or esomeprazole during breastfeeding, however use could proceed during breastfeeding with caution.

Limitations

- ◆ Evidence for the safety of PPIs in lactation at present is not robust, but based on case reports and single-dose studies.
- ◆ The information relates to full-term and healthy infants. Evidence in pre-term infants is lacking. If the infant is pre-term, of low birth weight or has other concomitant pathology or medical problems, then specialist advice should be sought as this answer may not apply. Contact the UK Drugs in Lactation Advisory Service (UKDILAS) provided by the Trent and West Midlands Medicines Information Services

References

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Search strategy

- Embase and Medline (Standard Search Patterns)
- Drugs and Lactation Database (LactMed). US National Library of Medicine. <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?LACT> . Accessed on 11/02/2016
- Hale TW. Medications and Mother's Milk. Online edition. Amarillo, TX. Pharmasoft Publishing. Available at www.medsmilk.com. Accessed on 11/02/2016
- In-house database / resources
- Manufacturers (eMC)