Clinical Practice Guideline

Contrast Medium Administration to Breast Feeding Mothers

Overview: Occasionally, contrast agents (either iodinated or gadolinium based) are indicated for an imaging study on a breastfeeding mother. The patient and the physician may be concerned about contrast media being excreted into breast milk and the contrast media exposure to the infant.

Target Audience: Imaging nurses, radiologic technologists, radiologists, radiology residents, radiology managers, healthcare providers, interns, and medical students

Content/Strategies: There is very limited literature on the excretion of contrast media into breast milk and the gastrointestinal absorption of these agents from breast milk.

- The following facts are known:
  - Less than 1% of the dose of contrast medium administered to the mother is excreted into breast milk.
  - Less than 1% of the contrast medium in breast milk that is ingested by an infant is absorbed from the gastrointestinal tract.
  - Therefore, the expected dose of contrast medium absorbed by a breastfeeding infant whose mother receives intravenous contrast is very low.
- Recommendation from the American College of Radiology (ACR):
  - Breastfeeding mothers should give informed consent for IV contrast, whether that contrast is iodinated or gadolinium-based.
    - The ACR believes, based on the facts above, that it is safe for the mother to continue to breastfeed after receiving IV contrast media.
    - The mother should make the decision whether to abstain from breastfeeding temporarily after receiving IV contrast media.
      - If the mother wishes to abstain from breastfeeding, she can actively express and discard her breast milk for 24 hours. Contrast has a two-hour half life and is nearly completely cleared from the bloodstream in 24 hours.
      - In anticipation of this, the mother may wish to bank her breast milk prior to the study to feed her infant during the 24 hours of abstinence following her scan.

Suggested Readings

American College of Radiology. (2008). *Manual on contrast media* (Version 6.0). Reston, VA: Author.

Ilett, K.F., Hackett, L.P., Paterson, J.W., & McCormick, C.C. (1981). Excretion of metrizamide in milk. *British Journal of Radiology, 54*, 537-538.

Johansen, J.G. (1978). Assessment of a non-ionic contrast medium (Amipaque) in the gastrointestinal tract. *Investigative Radiology, 13*(6), 523-527.

Kubik-Huch, R.A., Gottstein-Aalame, N.M., Frenzel, T., Seifert, B., Puchert, E., Wittek, S., & Debatin, J.F. (2000). Gadopentate dimeglumine excretion into human breast milk during lactation. *Radiology, 216*(2), 555-558.

Nielsen, S.T., Matheson, I., Rasmussen, J.N., Skinnemoen, K., Andrew, E., Hafsahl, G. (1987). Excretion of iohexol and metrizoate in human breast milk. *Acta Radiologica, 28*, 523-526.

Rofsky, N.M., Weinreb, J.C., & Litt, A.W. (1993). Quantitative analysis of gadopenetate dimeglumine excreted in breast milk. *Journal of Magnetic Resonance Imaging, 3*(1), 131-132

Other Resources

Ilett, K.F., et al.; Johansen, J.G.; Kubik-Huch, R.A., et al.

Facts about absorption of iodinated contrast media: The expected dose to the infant (1% excreted into breast milk, 1% of that absorbed by infant) is less than 0.01% of the IV dose given to the mother. This amount is less than 1% of the recommended dose for an infant undergoing an imaging study, which is 2ml/kg. Theoretical concerns include direct toxicity to the infant or allergic sensitization or reaction. (These have not been reported.)

Nielsen, S.T., et al.; Rofsky, N.M. et al.; Schmiedl et al.; Weinman et al.
Facts about absorption of gadolinium-based contrast media: Less than 0.04% of the IV dose given to the mother is excreted into breast milk in the first 24 hours and less than 1% of that is absorbed by the infant. Thus, the dose of gadolinium absorbed from the GI tract of an infant weighing 1500 grams or more would be no more than 0.00008 mmol/kg or 0.04% (four ten-thousandths) of the permitted adult or pediatric (2 yrs or older) IV dose of 0.2mmol/kg. It is not known how much of the gadolinium is in an unchelated form. Theoretical concerns include direct toxicity to the infant or allergic sensitization or reaction. (These have not been reported.)

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