

MRI CONTRAST AGENTS AND BREAST FEEDING MOTHERS



THE UNIVERSITY of TEXAS
HEALTH SCIENCE CENTER
AT HOUSTON

UT MRI Center

6431 Fannin, G.605, Houston, TX, 77030
Phone: (713)500-6916 Fax: (713)500-0698

Gadolinium-Based Contrast Agents

Background

Gadolinium compounds are safe and useful as magnetic resonance imaging contrast media. Although free gadolinium is neurotoxic, when complexed to one of a variety of chelates it is safe for use in most adults and children. These hydrophilic gadolinium chelate agents have pharmacokinetic properties very similar to those of iodinated X-ray contrast media. Like iodinated contrast media, gadolinium contrast media have a plasma half-life of approximately 2 hours and are nearly completely cleared from the bloodstream within 24 hours.

Less than 0.04% of the intravascular dose given to the mother is excreted into the breast milk in the first 24 hours (4-6). Because less than 1% of the contrast medium ingested by the infant is absorbed from its gastrointestinal tract (7), the expected dose absorbed by the infant from the breast milk is less than 0.0004% of the intravascular dose given to the mother. Even in the extreme circumstance of a mother weighing 150 kg and receiving a dose of 0.2 mmol/kg, the absolute amount of gadolinium excreted in the breast milk in the first 24-hours after administration would be no more than 0.012 mmol. Thus, the dose of gadolinium absorbed from the gastrointestinal tract of a breast-feeding infant weighing 1,500 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 years of age or older) intravenous dose of 0.2 mmol/kg. The potential risks to the infant include direct toxicity (including toxicity from free gadolinium in breast milk is in the unchelated form) and allergic sensitization or reaction, which are theoretical concerns but have not been reported.

Recommendation

Review of the literature shows no evidence to suggest that oral ingestion by an infant of the tiny amount of gadolinium contrast medium excreted into breast milk would cause toxic effects (8). We believe, therefore, that the available data suggest that it is safe for the mother and infant to continue breast-feeding after receiving such an agent.

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If the mother remains concerned about any potential ill effects, she should be given the opportunity to make an informed decision as to whether to continue or temporarily abstain from breast-feeding after receiving a gadolinium contrast medium. If the mother so desires, she may abstain from breast-feeding for 24 hours with active expression and discarding of breast milk from both breasts during that period. In anticipation of this, she may wish to use a breast pump to obtain milk before the contrast study to feed the infant during the 24-hour period following the examination.

I have read and understand the above data regarding contrast agents and breast feeding mothers.

Patient Name (printed)

Patient Signature

Date

Clinic Witness

Date