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Technetium Tc 99m Red Blood Cells

Revised: June 30, 2019.

Drug Levels and Effects

Summary of Use during Lactation

Information in this record refers to the use of technetium Tc 99m red blood cells as a diagnostic agent. The United States Nuclear Regulatory Commission[1] and the International Commission on Radiological Protection[2] recommend that breastfeeding should be interrupted temporarily after administration of *in vivo* labeled red blood cells but need not be interrupted after administration of *in vitro* labeled red blood cells (see table). To follow the principle of keeping exposure "as low as reasonably achievable", some experts recommend nursing the infant just before administration of the radiopharmaceutical and interrupting breastfeeding for 6 hours after the dose, then expressing the milk completely once and discarding it. During the period of interruption, the breasts should be emptied regularly and completely. If the mother has expressed and saved milk prior to the examination, she can feed it to the infant during the period of nursing interruption.[3][4][5] The milk that is pumped by the mother during the time of breastfeeding interruption can either be discarded or stored refrigerated and given to the infant after 10 physical half-lives, or about 60 hours, have elapsed. Mothers need not refrain from close contact with their infants after usual clinical doses.[6]

Mothers concerned about the level of radioactivity in their milk could ask to have it tested at a nuclear medicine facility at their hospital. When the radioactivity is at a safe level she may resume breastfeeding. A method for measuring milk radioactivity and determining the time when a mother can safely resume breastfeeding has been published.[7]

For nursing mothers who work with Tc 99m substances in their workplace, there is no need to take any precautions other than those appropriate for general radiation protection.[8]

Labelng Method	Dose	Duration of Interruption
in vivo	740 MBq (20 mCi)	6[1] to 12[2] hours
in vitro	1000 MBq (30 mCi)	None required[1][2]

Drug Levels

Tc 99m is a gamma emitter with a principal photon energy of 140.5 keV and a physical half-life of 6.024 hours.[1] The effective half-life of technetium Tc 99m red blood cells in vivo is 6.7 hours and 0.0057% of an administered dose is excreted into breastmilk.[10]

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.

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Substance Identification

Substance Name

Technetium Tc 99m Red Blood Cells

Drug Class

Breast Feeding

Lactation

Radiopharmaceuticals

Technetium Compounds

Diagnostic Agents