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Yttrium Y 90

Revised: July 20, 2020.

CASRN: 10098-91-6

Drug Levels and Effects

Summary of Use during Lactation

Information in this record refers to the use of yttrium Y-90 microspheres as therapeutic agents. No information is available on the use of yttrium Y-90 microspheres during breastfeeding. However, little (with resin) or no (with glass) yttrium Y-90 attached to microspheres is available to the systemic circulation of the mother after administration via the hepatic artery, and doses less than 17 GBq do not appear to require withholding of breastfeeding.[1] In a study in which external radiation was measured after 143 administrations (124 resin, 19 glass) to 86 patients, only one exceeded the threshold for concern with close infant contact, using conservative methods.[2]

A dose of 185 MBq of yttrium Y-90 citrate injected into the knee for radiosynoviorthesis resulted in high levels of radioactivity in the milk for at least 26 days. The authors recommended cessation of breastfeeding for at least 1 month, which would usually preclude further nursing of the current infant.[3]

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.[4]

Drug Levels

Yttrium-90 decays by emission of beta particles, with a physical half-life of 64.1 hours and a decay energy of 2.28 MeV.

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. Gulec SA, Siegel JA. Posttherapy radiation safety considerations in radiomicrosphere treatment with 90Y-microspheres. J Nucl Med. 2007;48:2080–6. PubMed PMID: 18006608.
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3. Pigrée G, Césini J, Cruet-Hennequart S, et al. Transfer of yttrium-90 to breast milk during radiosynoviorthesis of the knee joint. Eur J Nucl Med Mol Imaging. 2019;46:1591–3. PubMed PMID: 31069455.
4. Stabin MG, Breitz HB. Breast milk excretion of radiopharmaceuticals: mechanisms, findings, and radiation dosimetry. J Nucl Med. 2000;41:863–73. PubMed PMID: 10809203.

Substance Identification

Substance Name

Yttrium Y 90

CAS Registry Number

10098-91-6

Drug Class

Breast Feeding

Lactation

Radiopharmaceuticals

Yttrium Radioisotopes