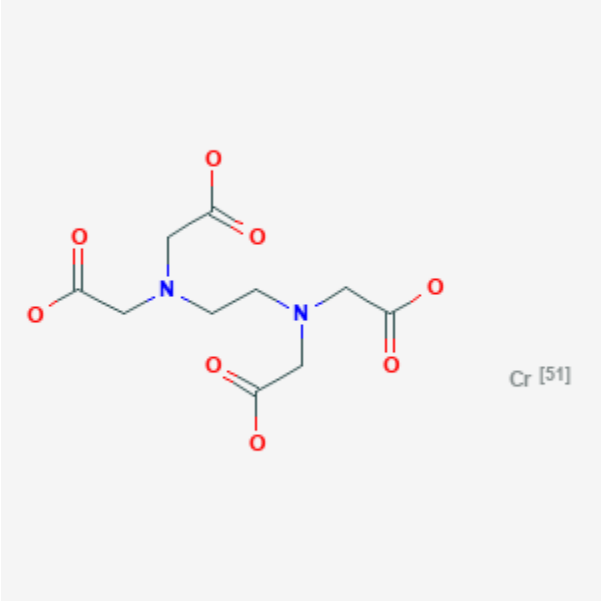
U.S. National Library of Medicine
National Center for Biotechnology Information

NLM Citation: Drugs and Lactation Database (LactMed) [Internet]. Bethesda (MD): National Library of Medicine (US); 2006-. Chromium Cr 51 Edetate. [Updated 2019 Jun 30].
Bookshelf URL: https://www.ncbi.nlm.nih.gov/books/

Chromium Cr 51 Edetate

Revised: June 30, 2019.

CASRN: 27849-89-4



Drug Levels and Effects

Summary of Use during Lactation

Information in this record refers to the use of chromium Cr 51 edetate (Cr 51-ethylenediamine tetraacetic acid; Cr 51-EDTA) as a diagnostic agent for the estimation of glomerular filtration rate. The International Commission on Radiological Protection and other experts state that breastfeeding need not be interrupted after administration of Cr 51 edetate.[1][2] The United States Nuclear Regulatory Commission states that breastfeeding need not be interrupted after administration of Cr 51 edetate in doses of 60 MBq (1.6 mCi) or less to a nursing mother.[3] However, 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 2 to 6 hours after the dose, then expressing the milk completely once and discarding it. 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.[4][5][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]

Drug Levels

Cr 51 is a gamma emitter with a principal photon energy of 320 keV and a physical half-life of 27.704 days.[3] The effective half-life of Cr 51 edetate ranges from 5 to 11 hours, depending on kidney function.[4][7] and about 0.065% of an administered dose is excreted into breastmilk.[1]

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. Leide-Svegborn S, Ahlgren L, Johansson L et al. Excretion of radionuclides in human breast milk after nuclear medicine examinations. Biokinetic and dosimetric data and recommendations on breastfeeding interruption. Eur J Nucl Med Mol Imaging. 2016;43:808-21. PubMed PMID: 26732471.
2. Mattsson S, Johansson L, Leide Svegborn S et al. Radiation dose to patients from radiopharmaceuticals: A compendium of current information related to frequently used substances. Annex D. Recommendations on breast-feeding interruptions. Ann ICRP. 2015;44 (2 Suppl):319-21. PubMed PMID: 26069086.
3. Howe DB, Beardsley M, Bakhsh S. Appendix U. Model procedure for release of patients or human research subjects administered radioactive materials. In, NUREG-1556. Consolidated guidance about materials licenses. Program-specific guidance about medical use licenses. Final report. U.S. Nuclear Regulatory Commission Office of Nuclear Material Safety and Safeguards. 2008;9, Rev. 2. Available at: http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/v9/r2/
4. Mountford PJ, Coakley AJ. A review of the secretion of radioactivity in human breast milk: data, quantitative analysis and recommendations. Nucl Med Commun. 1989;10:15-27. PubMed PMID: 2645546.
5. International Atomic Energy Agency. Radiation Protection and Safety in Medical Uses of Ionizing Radiation, IAEA Safety Standards Series No. SSG-46, IAEA, Vienna. 2018. Available at: https://www.iaea.org/publications/11102/radiation-protection-and-safety-in-medical-uses-of-ionizing-radiation
6. National Radiation Protection Board (UK). Administration of radioactive substances advisory committee. Notes for guidance on the clinical administration of radiopharmaceuticals and use of sealed radioactive sources. 2019. Available at: https://assets.publishing.service.gov.uk/government/.../file/.../ARSAC_NfG_2019.pdf
7. 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

Chromium Cr 51 Edetate

CAS Registry Number

27849-89-4

Drug Class

Breast Feeding

Lactation

Radiopharmaceuticals

Chromium Radioisotopes

Diagnostic Agents