Breastfeeding after Intravenous Administration of Contrast Media

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1. Purpose of guideline

The purpose of this guideline is to ensure that breastfeeding women receiving contrast media for radiology procedures are given accurate and consistent advice regarding resuming breastfeeding after contrast administration.

1.1 Frequency

Whenever contrast media is required for a breastfeeding woman.

2. Recommended best practice

The table below shows the recommendations relating to breastfeeding after administration of specified contrast media. These recommendations have been agreed by Obstetrics and Gynaecology (O&G), Radiology and Pharmacy.

Iodinated contrast media		
Generally, iodine from iodinated contrast media (either oral or injectable types) is distributed in very small quantities into the breast milk. Based on kinetic studies, it is unlikely that these agents will reach therapeutic levels in breast milk, and no adverse effects in infants have been observed following maternal use of iodinated radio-contrast agents (Hale, 2020). Both the American Academy of Paediatrics (AAP) and the American College of Radiology (ACR) consider that the use of iodinated contrast media is compatible with breastfeeding (Hale, 2020; see also Briggs et al. 2015; Sweetman, 2009)		
Contrast	**Action**	**Further information**
Omnipaque™ (iohexol injection)	Continue breastfeeding uninterrupted	Manufacturers recommend breastfeeding may continue without interruption (Medsafe, 2020).
Visipaque™ (iodixanol injection)	Continue breastfeeding uninterrupted	Manufacturers recommend breastfeeding may continue without interruption (Medsafe, 2017).
Gastrografin™ (oral) or Urografin™ (injection) (meglumine amidotrizoate and sodium amidotrizoate)	Continue breastfeeding uninterrupted	Manufacturer advises that the amount of Gastrografin in breastmilk is unknown and recommends thyroid function monitoring for exposed infants (Medsafe, 2018). However, other resources have stated that the reported amount in breastmilk is very low, and is safe for breastfeeding to continue (Hale 2020) Manufacturer advises that the amount of Urografin in breastmilk is unknown and recommends thyroid function monitoring for exposed infants (Medsafe, 2018). However, renally eliminated contrast media like Urografin™ enter the breast milk in only very

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		small amounts. Limited data suggest that breastfeeding is likely safe (Hale, 2020).
Ioscan™ (amidotrizoate sodium)	Continue breastfeeding uninterrupted	

Gadolinium-containing radio-contrast agents		
These agents are used in Magnetic Resonance Imaging (MRI). Although free gadolinium is nephrotoxic, it is considered safe when bound to the parent molecule in the contrast medium (Hale, 2020). The AAP considers that the use of gadopentetate dimeglumine is usually compatible with breastfeeding (Briggs et al., 2015); the ACR concludes that it is safe to continue breastfeeding after administering a gadolinium-containing contrast medium (Hale, 2020).		
Contrast	**Action**	**Further information**
Magnevist™ (gadopentetate dimeglumine)	Continue breastfeeding uninterrupted	The manufacturer recommends that caution is used when administered to a lactating mother (Medsafe, 2018). However, only a tiny fraction of administered dose is excreted into breast milk, and poor oral bioavailability further limits infant exposure (Hale, 2020). Considered compatible with breastfeeding by the AAP and the ACR (Hale, 2020; Briggs et al. (2015).
MultiHance™ (gadobenate dimeglumine)	Continue breastfeeding uninterrupted	Studies are lacking, however contrast is unlikely to accumulate to therapeutic levels in the infant (Hale, 2020). Manufacturer recommends cautious approach of suspension of breastfeeding from prior to the agent being administered, until 24 hours later (Medsafe, 2018). The need for this has been refuted and the ACR concludes that it is safe to continue breastfeeding after administering a gadolinium-containing contrast medium (Hale, 2020).
Dotarem™ (gadoteric acid)	Continue breastfeeding uninterrupted	Dotarem ™ is excreted in human milk in very small amounts. At clinical doses, no effects on the infant are anticipated. The physician and breast-feeding mother should decide whether to continue breastfeeding or to interrupt for 24 hours (Medsafe, 2020).
Primovist™ (gadoxetate	Continue	It is unknown if Primovist is excreted in

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disodium)	breastfeeding uninterrupted	human milk. There is evidence from non-clinical data that it can be excreted in very small amounts. At clinical doses, no effects on the infant are anticipated and Primovist can be used during breastfeeding (Medsafe, 2018).
Gadovist™ (gadobutrol)	Continue breastfeeding uninterrupted	It is unknown whether gadobutrol is excreted in human milk, though there is evidence from rats that it is excreted into breast milk in very small amounts and that absorption via the gastrointestinal tract is poor. At clinical doses, no effects on the infant are anticipated and Gadovist can be used during breastfeeding (Medsafe, 2019).

Technetium containing scans

Technetium is a radionuclide used in scintillation scans. As use of technetium-containing compounds has been reported to result in radioactivity being present in the breast milk for 15 to 72 hours (Hale, 2020), temporary cessation of breastfeeding is necessary.

The half-life of technetium is six hours. The dose used in scintillation scanning is significantly less than that used in other types of scan, and it has been reported that acceptable residual levels of technetium in breast milk can be reached by pumping, expressing and discarding the breast milk for 12-hours post-technetium at scintillation scanning doses (Schaefer et al., 2014). The International Atomic Energy Agency (2005) recommends cessation of breastfeeding for a period of 12 hours following the administration of technetium-99m MAA.

The period of withholding breastfeeding should be discussed with the woman as far in advance as possible, to allow her time to express and store milk for the period following the scan if she so desires.

Contrast	Action	Further information
Technetium-99m tin colloid (ventilation)	Pump and discard milk for 12 hours following scan (Schaefer et al., 2014).	
Technetium-99m MAA (macro-Aggregated Albumin) (perfusion)	Pump and discard milk for 12 hours following scan (Schaefer et al., 2014).	

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3. Supporting evidence

- Hale, T. W. (2020). Hale's Medications & Mothers' MilkTM 2020. Springer Publishing Company accessed online via halesmeds.com (*ADHB subscription*).
- Briggs, G., *et al*. (2015). Drugs in Pregnancy and Lactation (11th Ed.). Wolters Kluwer Health: Philadelphia.
- Sweetman, S. C. (Ed.). (2009). *Martindale: the complete drug reference* (Vol. 3709). London: Pharmaceutical press.
- Omnipaque (iohexol injection) [data sheet online]. GE Healthcare. [Updated 2020]. Available from: http://www.medsafe.govt.nz/
- Visipaque (iodixanol injection) [data sheet online]. GE Healthcare. [Updated 2017]. Available from: http://www.medsafe.govt.nz/
- Gastrografin (gastroenteral solution - sodium amidotrizoate 100 mg/mL and meglumine amidotrizoate 660 mg/mL) [data sheet online]. Bayer. [Updated 2018]. Available from: http://www.medsafe.govt.nz/
- Urografin [datasheet online via medsafe.govt.nz] Bayer Updated 2018
- Magnevist (gadopentetic acid injection) [data sheet online]. Bayer. [Updated 2018]. Available from: http://www.medsafe.govt.nz/
- Multihance (gadobenic acid injection) [data sheet online]. Regional Health Ltd. [Updated 2018]. Available from: http://www.medsafe.govt.nz/
- Dotaremin Injection (Gadoteric acid) [datasheet online] Guerbet; Updated 2020. Available from: http://www.medsafe.govt.nz/
- Primovist injection Bayer NZ Ltd [datasheet online] Updated 2018. Available from: http://www.medsafe.govt.nz/
- Gadovistin injection (gadobutrol) [datasheet online], Bayer New Zealand Limited, updated Jan 2019. Available from: http://www.medsafe.govt.nz/
- Schaefer, C., Peters, P. W., & Miller, R. K. (Eds.). (2014). *Drugs during pregnancy and lactation: treatment options and risk assessment*. Academic Press.
- International Atomic Energy Agency. (2005). *Applying Radiation Safety Standards in Nuclear Medicine* (No. 40). Vienna (Austria): International Atomic Energy Agency.

4. Associated documents

- Breastfeeding Policy

5. Disclaimer

No guideline can cover all variations required for specific circumstances. It is the responsibility of the health care practitioners using this Auckland DHB guideline to adapt it for safe use within their own institution, recognise the need for specialist help, and call for it without delay, when an individual patient falls outside of the boundaries of this guideline.

6. Corrections and amendments

The next scheduled review of this document is as per the document classification table (page 1). However, if the reader notices any errors or believes that the document should be reviewed ***before*** the scheduled date, they should contact the owner or Document Control without delay.