

WIKIPEDIA

Diatrizoate

Diatrizoate, also known as **amidotrizoate**, is a contrast agent used during X-ray imaging.^[1] This includes visualizing veins, the urinary system, spleen, and joints, as well as computer tomography (CT scan).^[1] It is given by mouth, injection into a vein, injection into the bladder, through a nasogastric tube, or rectally.^{[2][3]}

Relatively common side effects include vomiting, diarrhea, and skin redness.^[4] Other side effects include itchiness, kidney problems, low blood pressure, and allergic reactions.^[1] It is not recommended in people who have an iodine allergy.^[1] Diatrizoate is an iodinated ionic radiocontrast agent with high osmolality.^[2]

Diatrizoate was approved for medical use in the United States in 1954.^[4] It is on the World Health Organization's List of Essential Medicines.^[5]

Contents

Medical uses

Administration

Contraindications

Chemistry

Brand names

See also

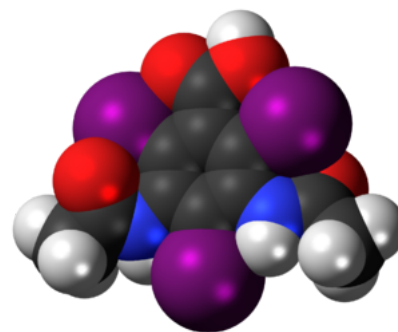
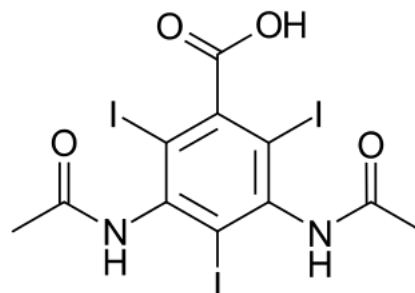
References

External links

Medical uses

Diatrizoic acid may be used as an alternative to barium sulfate for medical imaging of the gastrointestinal tract, such as upper gastrointestinal series and small bowel series. It is indicated for use in patients who are allergic to barium, or in cases where the barium might leak into the abdominal cavity. It does not coat the stomach/bowel lining as well as barium, so it is not used commonly for this purpose.

Diatrizoate



Clinical data

Trade names	Hypaque, Gastrografin, Iothalmate, Urografin, others
Other names	amidotrizoic acid, diatrizoic acid, 3,5-diacetamido- 2,4,6- triiodobenzoic acid
AHFS/Drugs.com	<u>Micromedex</u> <u>Detailed</u> <u>Consumer</u> <u>Information</u> (https://www.drugs.com/cons/diatrizoate-injection.html)

Identifiers

IUPAC name

It is also used to treat *Ascaris lumbricoides* (roundworms).^{[6][7]} Diatrizoate may not actually kill *Ascaris*, but instead it promotes shifting of fluid in the bowel lumen, so may relieve intestinal obstruction caused by impacted *Ascaris*.^[8]

Diatrizoate is used in suspected intestinal perforation, meconium ileus, and to identify bowel-lumen communication. It should not be used to investigate tracheo-oesophageal fistula because it can cause pulmonary oedema when aspirated into respiratory system. Diatrizoate can dislodge sticky meconium by drawing water into intestines.^[9] Diatrizoate is minimally absorbed from the intestines and excreted into urinary bladder.^[10] Because of its high osmolarity it can draw water from the surrounding tissues into the intestines, thus cause dehydration in people with already small plasma volume such as infants. Because of the additives and flavouring agents, diatrizoate must not be used intravascularly. This chemical must be kept away from sunlight during storage.^[11]

Administration

It is given orally on computed tomography of the abdomen and pelvis as 30 ml solution with 3% concentration to visualise the bowel lumen and any communications with the bowel lumen.^[12] In principle, diatrizoic acid is administered by the route most appropriate and sensible to image the structure/-s of interest (e.g., IV for blood vessels through which it is distributed and kidney–ureters–bladder that excrete it; orally or per rectally as an enema for the gastrointestinal tract).

- It is given orally or by enema to image the gastrointestinal tract.
- It is given by Foley catheter to image the urinary tract.

Contraindications

A history of sensitivity to iodine is not a contraindication to using diatrizoate, although it suggests caution in use of the agent. In this case, a regimen of oral or intravenous corticosteroids may be given as prophylaxis, or an alternative such as barium sulfate may be preferable.

Gastrografen is contraindicated to use along with certain medications that can cause lactic acidosis, such as metformin. Concurrent use may lead to kidney failure and lactic acidosis, and a clinician may need to space the agents apart over a number of days to prevent an interaction.^[13]

3,5-Bis(acetylamino)-2,4,6-triiodobenzoic acid	
CAS Number	737-31-5 (https://commonchemistry.cas.org/detail?cas_rn=737-31-5)
PubChem CID	2140 (https://pubchem.ncbi.nlm.nih.gov/compound/2140)
DrugBank	DB00271 (https://www.drugbank.ca/drugs/DB00271)
ChemSpider	2055 (https://www.chemspider.com/Chemical-Structure.2055.html)
UNII	V5403H8VG7 (https://precision.fda.gov/uniisearch/srs/unii/V5403H8VG7)
KEGG	D02240 (https://www.kegg.jp/entry/D02240)
ChEBI	CHEBI:53691 (https://www.ebi.ac.uk/chebi/searchId.do?chebiId=CHEBI:53691)
ChEMBL	ChEMBL1201220 (https://www.ebi.ac.uk/chembl/db/in dex.php/compound/inspect/ChEMBL1201220)
CompTox Dashboard (EPA)	DTXSID0044521 (https://comptox.epa.gov/dashboard/chemical/detail)

Gastrografin is a hypertonic solution, and therefore it should be avoided in imaging studies of the upper gastrointestinal tract in patients who are at risk of aspiration, as it will cause prompt pulmonary edema if accidentally introduced into the tracheobronchial tree.

Urografin is not to be used for myelography, ventriculography or cisternography, since it is likely to provoke neurotoxic symptoms in these examinations.^[14]

Chemistry

Diatrizoate is considered a high-osmolality contrast agent. Its osmolality ranges from approximately 1500 mOsm/kg (50% solution)^[15] to over 2000 mOsm/kg (76% solution).^[16]

Brand names

Brand names include Hypaque, Gastrografin, MD-Gastroview, Iothalmate, and Urografin. Urografin is a combination of the sodium and meglumine salts.

See also

The core structure is a popular one and numerous analogues exist.

Mono-compounds

- Acetrizic acid and its sodium salt sodium acetrizate
- Metrizic acid
- Iodamide
- Iotalamic acid
- Ioxitalamic acid
- Ioglicic acid
- Iocetamic acid

Bis-compounds

- Adipiodone
- Iocarmic acid
- Ioglycamic acid
- Iotroxic acid

References

1. World Health Organization (2009). Stuart MC, Kouimtzi M, Hill SR (eds.). *WHO Model Formulary 2008*. World Health Organization. p. 316. hdl:10665/44053 (https://hdl.handle.net/10665%2F4405

	s/DTXSID0044521)
ECHA InfoCard	100.003.840 (https://echa.europa.eu/substance-information/-/substanceinfo/100.003.840)
Chemical and physical data	
Formula	C ₁₁ H ₉ I ₃ N ₂ O ₄
Molar mass	613.916 g·mol ^{−1}
3D model (JSmol)	Interactive image (https://chemapps.stolaf.edu/jmol/jmol.php?model=CC%28%3DO%29NC1%3DC%28C%28%3DC%28C%28%3DC1%29C%28%3DO%29NC%29I)
SMILES	CC(=O)NC1=C(C(=C(C(=C1)C(=O)O)I)NC(=O)C)I
InChI	InChI=1S/C11H9I3N2O4/c1-3(17)15-9-6(12)5(11(19)20)7(13)10(8(9)14)16-4(2)18/h1-2H3,(H,15,17)(H,16,18)(H,19,20)✓ Key:YVPYQUNUQOZFHG-UHFFFAOYSA-N

- 3). ISBN 9789241547659.
2. Hamilton, Richart (2015). *Tarascon Pocket Pharmacopoeia 2015 Deluxe Lab-Coat Edition*. Jones & Bartlett Learning. p. 171. ISBN 9781284057560.
3. Thomsen, Henrik; Muller, Robert N.; Mattrey, Robert F. (2012). *Trends in Contrast Media* (<https://books.google.com/books?id=Bun1CAAQBAJ&pg=PA13>). Springer Science & Business Media. p. 13. ISBN 9783642598142. Archived (<https://web.archive.org/web/20170101002210/https://books.google.ca/books?id=Bun1CAAQBAJ&pg=PA13>) from the original on 2017-01-01.
4. "Diatrizoate Side Effects in Detail - Drugs.com" (<https://www.drugs.com/sfx/diatrizoate-side-effects.html>). *www.drugs.com*. Archived (<https://web.archive.org/web/20170101002605/https://www.drugs.com/sfx/diatrizoate-side-effects.html>) from the original on 1 January 2017. Retrieved 31 December 2016.
5. World Health Organization (2019). *World Health Organization model list of essential medicines: 21st list 2019*. Geneva: World Health Organization. hdl:10665/325771 (<https://hdl.handle.net/10665%2F325771>). WHO/MVP/EMP/IAU/2019.06. License: CC BY-NC-SA 3.0 IGO.
6. Sood (1996). *Surgical Diseases in Tropical Countries* (<https://books.google.com/books?id=kpxMrfCtUs8C&pg=PA72>). Jaypee Brothers Publishers. pp. 72–. ISBN 978-81-7179-444-7. Retrieved 11 August 2010.
7. Moshe Schein; Paul Rogers; Ahmad Assalia (2010). *Schein's Common Sense Emergency Abdominal Surgery* (<https://books.google.com/books?id=BUdLUsbxTjQC&pg=PA391>). Springer. pp. 391–. ISBN 978-3-540-74820-5. Archived (<https://web.archive.org/web/20170329153040/http://books.google.com/books?id=BUdLUsbxTjQC&pg=PA391>) from the original on 29 March 2017. Retrieved 11 August 2010.
8. "Therapeutic Value of Gastrografin" (http://www.medscape.com/viewarticle/439595_4). Archived (https://web.archive.org/web/20160618064930/http://www.medscape.com/viewarticle/439595_4) from the original on 2016-06-18. Retrieved 2016-07-28.
9. Nick, Watson; Hefin, Jones (2018). "Introduction to contrast media". *Chapman & Nakielny's Guide to Radiological procedures* (7th ed.). London: Elsevier. p. 44, 49, 69. ISBN 9780702071669.
10. Poole, Catherine A.; Rowe, Marc I. (January 1976). "Clinical Evidence of Intestinal Absorption of Gastrografin" (<http://pubs.rsna.org/doi/10.1148/118.1.151>). *Radiology*. **118** (1): 151–153. doi:10.1148/118.1.151 (<https://doi.org/10.1148%2F118.1.151>). ISSN 0033-8419 (<https://www.worldcat.org/issn/0033-8419>). PMID 1244649 (<https://pubmed.ncbi.nlm.nih.gov/1244649>).
11. "Professional information: gastrografin aqueous solution" (https://web.archive.org/web/20220202041134/https://www.bayer.com/sites/default/files/GASTROGRAFIN_EN_PI.pdf) (PDF). Bayer. 2 September 2018. Archived from the original (https://www.bayer.com/sites/default/files/GASTROGRAFIN_EN_PI.pdf) (PDF) on 2 February 2022. Retrieved 2 February 2022.
12. Watson, Nick; Jones, Hefin (2018). *Chapman and Nakielny's Guide to Radiological Procedures*. Elsevier. p. 44. ISBN 9780702071669.
13. Micromedex Healthcare Series (November 2010). "DIATRIZOATE MEGLUMINE/DIATRIZOATE SODIUM" (http://www.thomsonhc.com/hcs/librarian/ND_T/HCS/ND_PR/Main/CS/B469E9/DUPLICATIONSHIELDSYNC/8D376E/ND_PG/PRIH/ND_B/HCS/SBK/2/ND_P/Main/PFActionId/hcs.common.RetrieveDocumentCommon/DocId/2697/ContentSetId/31#contraindicationsSection). *DRUGDEX*. Thomson Reuters (Healthcare) Inc. Retrieved 2010-11-10.
14. Bayer New Zealand Limited (September 2007). "UROGRAFIN Urografin Corporate Core Text" (<http://www.bayerresources.com.au/resources/uploads/DataSheet/file9513.pdf>) (PDF). Archived (<https://web.archive.org/web/20160304034644/http://www.bayerresources.com.au/resources/uploads/DataSheet/file9513.pdf>) (PDF) from the original on 2016-03-04. Retrieved 2012-04-02.

15. Amersham Health (April 2006). "Hypaque sodium (Diatrizoate Sodium) injection, solution. Product label" (<http://dailymed.nlm.nih.gov/dailymed/fdaDrugXsl.cfm?id=1808&type=display>). *DailyMed*. U.S. National Library of Medicine. Archived (<https://web.archive.org/web/20110523223510/http://dailymed.nlm.nih.gov/dailymed/fdaDrugXsl.cfm?id=1808&type=display>) from the original on 2011-05-23. Retrieved 2007-03-29.
16. Amersham Health (April 2006). "Hypaque (Diatrizoate Meglumine and Diatrizoate Sodium) injection, solution. Product label" (<http://dailymed.nlm.nih.gov/dailymed/fdaDrugXsl.cfm?id=997&type=display>). *DailyMed*. U.S. National Library of Medicine. Archived (<https://web.archive.org/web/20110523223457/http://dailymed.nlm.nih.gov/dailymed/fdaDrugXsl.cfm?id=997&type=display>) from the original on 2011-05-23. Retrieved 2007-03-29.

External links

- "Diatrizoate" (<https://druginfo.nlm.nih.gov/drugportal/name/diatrizoate>). *Drug Information Portal*. U.S. National Library of Medicine.
-

Retrieved from "<https://en.wikipedia.org/w/index.php?title=Diatrizoate&oldid=1078044894>"

This page was last edited on 19 March 2022, at 15:23 (UTC).

Text is available under the Creative Commons Attribution-ShareAlike License 3.0; additional terms may apply. By using this site, you agree to the Terms of Use and Privacy Policy. Wikipedia® is a registered trademark of the Wikimedia Foundation, Inc., a non-profit organization.