



**European
Society
of
Urogenital
Radiology**

***Guidelines on Contrast
Media***

Vers. 1.0

www.esur.org

Foreword

One of the aims of the European Society of Urogenital Radiology (ESUR) as stated in its by-laws is promote research and improve knowledge about contrast media. In 1994 the Board of ESUR established a Contrast Media Safety Committee. The Committee has until now forwarded three guidelines. They can be found in this leaflet. More guidelines will come in the near future. The leaflet will then be updated (look for the latest version). However, you can always find the latest version of the all ESUR Guidelines on the internet. Just look at: www.esur.org.

The European Society of Urogenital Radiology hopes that the guidelines will be of help in your daily practice and to the benefit of the patients. Comments are very welcome.

ESUR Contrast Media Safety Committee
August 2000

Guidelines to avoid Contrast Medium

Induced Nephrotoxicity

Source: S.K. Morcos, H.S. Thomsen, J.A.W. Webb and members of the Contrast Media Safety Committee of the European Society of Urogenital Radiology (ESUR). Contrast-media-induced nephrotoxicity: a consensus report. Eur Radiol 1999; 9: 1602-1613.

Definition		Contrast medium nephrotoxicity is a condition in which an impairment renal function (<i>an increase in serum reatinine by more than 25% or 44μmol/l</i>) occurs within 3 days following the intravascular administration of a contrast medium (CM) in the absence of an alternative etiology.
Risk factors	Look for	• S-creatinine levels, particularly secondary to diabetic nephropathy. • Dehydration • Congestive heart failure • Age over 70 years old • Concurrent administration of nephrotoxic drugs, e.g. non-steroid anti-inflammatory drugs.

In patients With Risk factor(s)	Do	• Make sure that the patient is well hydrated [give at least 100 ml (oral (e.g. soft drinks) or intravenous (normal saline) depending on the clinical situation) per hour starting 4 hours before to 24 hours after contrast administration – in warm areas increase the fluid volume] • Use low- or iso-osmolar contrast media • Stop administration of nephrotoxic drugs for at least 24 hours. • Consider alternative imaging techniques, which do not require the administration of iodinated contrast media
	Do not	• Give high osmolar contrast media • Administer large doses of contrast media • Administer mannitol and diuretics, particularly loop-diuretics • Perform multiple studies with contrast media within a short period of time

Guidelines for the administration of contrast

media to diabetics taking metformin

Source: H.S. Thomsen, S.K. Morcos, ESUR Contrast Media Safety Committee. Contrast media and metformin: guidelines to diminish the risk of lactic acidosis in non-insulin-dependent diabetics after administration of contrast media. Eur Radiol 1999; 9: 738-740.

Serum creatinine level should be measured in every diabetic patient treated with biguanides prior to intravascular administration of contrast media. Low-osmolar contrast media should always be used in these patients.

Elective studies

a) If the serum creatinine is normal, the radiological examination should be performed and intake of metformin stopped from the time of the study. The use of metformin should not be resumed for 48 hrs and should only be restarted if renal function/serum creatinine remains within the normal range.

b) If renal function is abnormal, the metformin should be stopped and the contrast study should be delayed for 48 hrs. Metformin should only be restarted 48 hrs later, if renal function/serum creatinine is unchanged.

Emergency cases

a) If the serum creatinine is normal, the study may proceed as suggested for elective patients.

b) If the renal function is abnormal (or unknown), the physician should weigh the risks and benefits of contrast administration. Alternative imaging techniques should be considered. If contrast media administration is deemed necessary, the following precautions should be implemented:

- Metformin therapy should be stopped.
- The patient should be hydrated (e.g. at least 100 ml per hour of soft drinks or intravenous saline up to 24 hours after contrast medium administration – In warm areas more fluid should be given).
- Monitor renal function (serum creatinine), serum lactic acid and pH of blood.
- Look for symptoms of lactic acidosis (vomiting, somnolence, nausea, epigastric pain, anorexia, hyperpnea, lethargy, diarrhea and thirst). Blood test results indicative of lactic acidosis: pH < 7.25 and lactic acid > 5 mmol.

Prevention of Generalized Contrast Medium Reactions in Adults

Source: S.K. Morcos, H.S. Thomsen, J. A.W. Webb FRCR and members of *Contrast Media Safety Committee of European Society of Urogenital Radiology (ESUR). Prevention of generalized reactions to contrast media: A consensus report and guidelines. (not published at time of printing)

A. Risk factors for reactions

- Previous generalized contrast medium reaction, either moderate (e.g. urticaria, bronchospasm moderate hypotension) or severe (e.g. convulsions, severe bronchospasm, pulmonary edema, cardiovascular collapse).
- Asthma.
- Allergy requiring medical treatment.

B. To reduce the risk of generalized contrast medium reactions

- Use non-ionic agents.

C. Premedication is recommended in high risk patients (defined in A)

- When ionic agents are used.
- When nonionic agents are used, opinion is divided about the value of premedication.

D. Recommended pretreatment

- Corticosteroids
Prednisolone 30 mg orally or Methylprednisolone 32 mg orally 12 and 2 hours before contrast medium.
Corticosteroids are not effective if given less than 6 hours before contrast medium
- Antihistamines H1 and H2 may be used in addition to corticosteroids, but opinion is divided.

E. Remember for all patients

- Have a trolley with resuscitation drugs in the examination room.
- Observe patients for 20 to 30 minutes after contrast medium injection.

F. Extravascular administration

- When absorption or leakage into the circulation is possible, take the same precautions as for intravascular administration.

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