Name of Policy:	**Use of Gadolinium-Based Contrast Agents**
Policy Number:	3364-135-130
Department:	Radiology
Approving Officer:	Chief Operating Officer - UTMC
Responsible Agent:	Chairman & Professor, Radiology
Scope:	Radiology

THE UNIVERSITY OF TOLEDO MEDICAL CENTER

Effective Date: 2/1/2022

Initial Effective Date: 1/5/2009

_____ New policy proposal	_____ Minor/technical revision of existing policy
X Major revision of existing policy	_____ Reaffirmation of existing policy

(A) Policy Statement

The following guidelines and policies are derived, many times verbatim, from the ACR Manual on Contrast Media 2021. Additional references will be provided as needed or requested.

The major purpose of these guidelines and policies is to assist attending and resident radiologists, technologists, and referring clinicians in recognizing and managing the small but real risks inherent in the use of intravenous gadolinium-based contrast agents (GBCA) utilized at the University of Toledo Medical Center. The following applies to patients >14 years of age unless indicated. Please see separate section regarding patients ≤ 14 years of age.

As would be appropriate with any diagnostic procedure, preliminary considerations for the referring physician and the radiologist include:

1. Assessment of patient risk versus potential benefit of the contrast assisted examination.
2. Imaging alternatives that would provide the same or better diagnostic information.
3. Assurance of a valid clinical indication for each contrast medium administration.

(B) Purpose

Improve patient safety by identifying at risk patients for gadolinium–based contrast administration.

(C) Scope

All health care professionals involved in caring for patients in whom intravenous gadolinium-based contrast is administered.

(D) Procedure

1. Intravenous use of Gadolinium-Based Contrast

- Gadoterate meglumine IV administration requires NO screening Glomerular Filtration Rate (GFR).
- If a patient is receiving acute dialysis or has acute kidney injury (AKI) - consult the radiologist prior to contrast injection to discuss possible alternative modalities and the decision to proceed with any gadolinium based contrast media (GBCM). *GFR* is *unreliable to assess renal function in AKI.*
- If a patient has end-stage renal disease on chronic dialysis, if feasible, elective enhanced MRI examinations be performed before regularly scheduled dialysis.
- **Eovist** requires a GFR on patients with any of the following criteria:
  - Personal history of kidney disease including the following:
    - Known chronic kidney disease
    - Remote history of renal failure/acute kidney injury (AKI)
    - Dialysis
    - Kidney surgery or ablation
    - Albumi
      nuria
  - GFR timing:
    - A GFR within 30 days is acceptable for outpatients.
    - A GFR within 48 hours *is* recommended for ER/inpatients
  - Proceeding with IV contrast after GFR values obtained:
    - GFR 30 or greater - proceed with dose and rate of contrast as defined by MRI protocols
    - GFR less than 30 or acute kidney injury (AKI) - consult the radiologist prior to contrast injection to discuss possible alternative modalities and the decision to proceed.

Referenced from the American College of Radiology/Manual of Contrast Media http://www.acr.org- Accessed August 2021

2. Premedication guidelines for prior allergic like reactions to iodinated and gadolinium based contrast agents

Life Threatening Situations:

In clinical situations, the urgency of a contrast-enhanced examination may outweigh the benefits of prophylaxis, regardless of duration, necessitating that contrast medium be administered to a high-risk patient in the absence of premedication. This determination is best made jointly by the radiology team, the referring service, and potentially the patient (if feasible).

If a contrast enhanced study is ordered and it is to be done without the premedication regimen below, *the ordering provider is responsible and it is at their discretion to proceed.* The name of the

provider taking responsibility for the possible allergic-like reaction must be documented in the tech notes. In such cases, a team of individuals skilled in resuscitation should be available during the injection to monitor for and appropriately manage any developing reaction.

If there is a request to deviate from the recommended protocol consider consulting the radiologist prior to contrast injection to discuss possible alternative modalities.

Inpatient/Emergency Room Protocol for Non-Life Threatening Situations:

- At 5 hours before the contrasted exam give 40 mg Methylprednisolone sodium succinate (e.g., Solu-Medrol®) intravenous (IV).
- At 1 hour before the contrasted exam give 40 mg Methylprednisolone sodium succinate (e.g., Solu-Medrol®) I V and 50 mg diphenhydramine IV.

*One can substitute 200 mg hydrocortisone sodium succinate (e.g., Solu-Cortef@} IV for 5 hour and 1 hour doses of methylprednisolone.

If there is a reported allergy to methylprednisolone:

- At 5 hours before the contrasted exam give 7.5 mg Dexamethasone sodium sulfate (e.g., Decadron®) IV.
- At 1 hour before the contrasted exam give 7.5 mg Dexamethasone sodium sulfate (e.g., Decadron@} IV and 50 mg diphenhydramine IV.

Outpatient Protocol:

- 50 mg prednisone by mouth at 13 hours, 7 hours, and 1 hour before contrast medium administration, PLUS 50 mg diphenhydramine by mouth 1 hour before contrast medium administration.

OR

- 32 mg methylprednisolone by mouth 12 hours and 2 hours before contrast medium administration, PLUS 50 mg diphenhydramine by mouth 1 hour before contrast medium administration.

3. Pregnant or Potentially Pregnant Patients

- It is unclear how gadolinium-based contrast agents affect the fetus and should be administered with caution and only when there is substantial benefit to the risk of GBCAs administration.
- The technologist will screen all patients prior to imaging for the potential of pregnancy .
- If a patient is found to be pregnant an attending or resident radiologist should confer with the requesting physician.
- If contrast is deemed necessary the following should be documented in the diagnostic report:
  - The diagnostic information cannot be obtained without the use of the GBCA or other modalities.
  - The diagnostic information needed affects the care of the patient and/or fetus during the pregnancy
  - That the referring physician is of the opinion that it is not prudent to wait to obtain this information until after the patient is no longer pregnant.

4. Intravenous Gadolinium-Based Contrast Media in Children

- Pediatric patient is defined as ≤ 14 years of age.
- Principles regarding contrast media in children and their adverse events are similar to the above adult recommendations as it relates to allergic-like reactions, extravasations, and NSF.
- Given the limited number of neonatal and pediatric cases performed at the University of Toledo Medical Center, all patients 14 years or younger that a contrast (iodinated or GBCA) study is requested will be need approval by the attending or resident radiologist prior to intravenous contrast administration.
- Standard dosing of intravenous contrast agents per the package inserts will be followed.
- Premedication regimens for prior allergic-like reactions will require weight based dosing.

/s/ Haitham Elsamaloty, MD Chairman & Professor, Radiology	03/14/2022 Date	8/13/1999 9/9/1995 5/22/2008 5/1/2011 7/11/2012 8/11/2015 8/1/2018 10/1/2021 2/1/2022
/s/ Christine Stesney-Ridenour, FACHE Chief Operating Officer - UTMC	03/15/2022 Date	
		Next Review Date: 2/1/2025
Policies Superseded by This Policy:		