UAB MEDICINE **Radiology Policy**

Title:	*MRI Contrast Media*				
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PURPOSE: To establish guidelines for the use of contrast media within the MRI department.

SCOPE: This policy applies to all UAB Medicine Department of Radiology MRI sections and Cardiovascular MRI at Boshell.

POLICY:

A. Administration of IV contrast will be under the supervision of the Radiologist/Physician and be given by the RN, Radiologist/Physician, Radiology resident, or Registered Radiologic Technologist who has met the requirements for the administration of IV contrast.

B. A Radiologist, Radiologist designee, ACLS/BLS trained RN, or Physician shall be available to respond within 5 minutes any time contrast is being administered.

C. For Group II agents (e.g., Prohance, Eovist, Clariscanand Dotarem), assessment of renal function with a questionnaire or laboratory testing is optional and not required prior to intravenous administration for both outpatients and inpatients.

D. Management of Contrast Reactions in Radiology

1. Adverse reactions to contrast media can be categorized as:
   a. **Mild** - Signs and symptoms are self-limited without evidence of progression.
      i. Patient may have symptoms of itching, rash, hives, swelling of eyes or face, nasal stuffiness, headache, and shaking.
   b. **Moderate** - Signs and symptoms are moved pronounced and commonly require medical management. Some of these reactions have the potential to become severe if not treated.
      i. Patient may have symptoms of tightness in throat in chest, lightheadedness, shortness of breath, increased swelling, mild laryngeal edema, and wheezing.
   c. **Severe** - Signs and symptoms are often life-threatening and can result in permanent morbidity or death if not managed appropriately.
      i. Patient may have symptoms of severe or rapidly progressing swelling, difficulty breathing, chest tightness, loss of consciousness, and seizure like activity.

E. Management of Contrast Media Reactions
   1. Immediately stop infusion of contrast media, if possible.
   2. Notify RN and Radiologist for assessment and treatment
      a. Refer to ACR Reaction Card within the department and attached to this policy.
   3. Call STAT Team, MET Team, Code Team or Fire and Rescue depending on the location.

F. Premedication
   1. If the patient's prior reaction(s) was/were mild and have received the appropriate premedication, the technologist can proceed with exam without consulting the Radiologist. All prior moderate, severe, indeterminate reactions, or deviations from the routine premedication protocol should be consult with a radiology resident, fellow, or attending.
   2. **Outpatients** with prior allergic-like or unknown contrast reaction to the same class of contrast medium undergo a 12-hour premedication regimen as detailed below. A radiology resident, fellow, or attending may override this requirement as needed for outpatients with prior mild contrast reactions.
      a. Premedication for outpatients with prior reactions (as above) should be ordered by the licensed practitioner ordering the MRI, using the prophylaxis PowerPlan.
         i. Methylprednisolone 32mg, by mouth, twice – once at 12 hours prior to the exam and once again at 2 hours prior to the scheduled MRI exam.
            - **OPTIONALLY**, in addition to methylprednisolone, diphenhydramine (Benadryl) 50mg may be given by mouth once, 1 hour prior to the scheduled MRI exam.

   3. **Emergency Department Patient or Inpatient** with prior allergic-like or unknown type contrast reaction of the same class or contrast medium in whom use of the 12-hour premedication is anticipated to adversely delay care decision or treatment typically undergo a 5-hour accelerated IV premedication regimen as detailed below.
      a. Premedication for ED or Inpatients with prior reactions (as above) should be ordered by the licensed practitioner ordering the MRI, using the prophylaxis PowerPlan. There are two (2) recommended options:
         i. Methylprednisolone 40mg, IV, twice – once at 5 hours prior to, and once again at 1 hour prior to the scheduled MRI exam.

            OR

         ii. Hydrocortisone 200mg, IV, twice – once at 5 hours prior to, and once again at 1 hour prior to the scheduled MRI exam.
            - **OPTIONALLY**, in addition to hydrocortisone, diphenhydramine (Benadryl) 50mg IV may be ordered to be given 1 hour before the scheduled MRI exam.

G. Informed Consent
   1. Consent will not be required for non-contrast MRI in the pregnant patient however, a radiologist or radiology resident must discuss the case with the referring doctor to confirm the appropriateness of the exam and the lack of viable alternatives.
   2. Gadolinium (MRI contrast agent) is generally not given in cases involving pregnancy.
      a. On a special case-by-case basis, an attending Radiologist may prescribe gadolinium-based contrast agents. This should be accompanied with a well-documented risk-benefit analysis that defends the decision to administer contrast. This decision should only be made if there is an overwhelming potential benefit to the patient or fetus outweighing the risk of long-term exposure of the fetus to free gadolinium ions. The patient will be counseled and written informed consent

b. The consent form from the patient or her/his representative will be digitized as a component of the MRI examination and become part of the patient record via PACS. The paper informed consent document will be placed in the patient's clinic or hospital chart.

H. Guidelines for Oral Contrast Administration
1. The technologist will review the indication entered by the ordering physician and administer oral contrast per radiologist protocol.
2. The technologist will prepare the oral contrast per protocol.
3. Oral contrast is given in the MRI department prior to the exam.

ACR American College of Radiology

ADULT

CODE BLUE #: 4-1010

Modified by UAB Department of Radiology 8/22/2024

EXAMPLE PREMEDICATION REGIMENS

Outpatient:
Methylprednisolone 32 mg PO 12, 2 hrs prior +/- Benadryl 50 mg PO 1 hr prior.

Inpatient/Emergent Cases
Hydrocortisone 200 mg **or** Methylprednisolone 40mg IV 5 hrs and 1 hr prior and Benadryl 50 mg IV 1 hr prior.

CONTRAST EXTRAVASATION

Elevate arm (heart level), apply cool compress, remove rings. Observe. Consider surgical consultation for decreased perfusion, sensation, strength, active range of motion, or increasing pain.

Document reaction & monitor for return of symptoms post-treatment

HIVES/DIFFUSE ERYTHEMA

1. Observation; monitor vitals q 15 min. Preserve IV access.
2. If associated with hypotension or respiratory distress then considered **Anaphylaxis**:
   - O_2 6-10 L/min by face mask
   - IVF 0.9% NS wide open; elevate legs > 60°
   - Epinephrine 0.3 mL of 1mg/mL IM (or auto-injector) OR Epinephrine 1 mL of 1mg/10mL (0.1 mg/mL) IV with slow flush or IV fluids
   - **Call 911** or **CODE BLUE**
3. If *ONLY* skin findings but severe or progressive may consider Benadryl 50 mg PO, IM, IV but may cause or worsen hypotension.

HYPOTENSION WITH TACHYCARDIA (ANAPHYLAXIS)

1. Preserve IV access, monitor vitals q 15m
2. O_2 6-10 L/min by face mask
3. Elevate legs > 60°
4. IVF 0.9% NS wide open
5. Epinephrine 0.3 mL of 1mg/mL IM (or auto-injector) OR Epinephrine 1 mL of 1mg/10mL (0.1 mg/mL) IV with slow flush or IV fluids
6. **Call 911** or **CODE BLUE**

HYPOTENSION WITH BRADYCARDIA

1. Preserve IV access; monitor vitals
2. O_2 6-10 L/min by face mask
3. Elevate legs > 60°
4. IVF 0.9% NS wide open
5. Atropine 0.6-1.0 mg IV if refractory
6. **Consider calling 911** or **CODE BLUE**

ADULT

LARYNGEAL EDEMA (INSPIRATORY STRIDOR)

1. Preserve IV access, monitor vitals
2. O_2 6-10 L/ min by face mask
3. Epinephrine 0.3 mL of 1mg/ mL IM (or auto-injector) OR Epinephrine 1 mL of 1mg/10mL (0.1 mg/mL) IV with slow flush or IV fluids
4. **Call 911** or **CODE BLUE**

BRONCHOSPASM (EXPIRATORY WHEEZE)

1. Preserve IV access, monitor vitals
2. O_2 6-10 L/min by face mask
3. Beta-2 agonist inhaler 2 puffs; repeat x 3
4. If not responding or severe, then use Epinephrine 0.3 mL of 1mg/ mL IM (or auto-injector) OR Epinephrine 1 mL of 1mg/10mL (0.1 mg/mL) IV with slow flush or IV fluids
5. **Call 911** or **CODE BLUE**

CONTENT BELOW THIS LINE IS ADMINISTRATIVE AND IS NOT PART OF POLICY.

...**REFERENCES:**
Tublin et al Current Concepts in Contrast Media Induced Nephropathy. American Journal of Roentgenology (AJR) 1998; 171:933. European Society of Urogenital Radiology (ESUR) guidelines on contrast media: www.esur.org Thomsen HS. Guidelines for Contrast Media American Journal of Roentgenology (AJR) 2003;181:1463 Manual on Contrast Media form the American College of Radiology, , 2023 MRI Contrast Dosing Protocol, 2018.

CMS:	**None**	**TJCH:**	**None**
NFPA Ref #	**None**		
Cross-References (CR): None			

ATTACHMENTS: None

INTERDISCIPLINARY COLLABORATION

Radiology Committee	*10/7/24*
Pharmacy & Therapeutics Committee	*10/2/24*
Committees / Councils	Endorsement Date
None	
Department(s)	Endorsement Date

Tracking Record

Supersedes:	MRI Contrast Media 10/04/07, 09/06/10, 04/07/14, 12/17/14; 4/26/18; 10/17/23
File Name:	MRI Contrast Media R#21r6
REVISIONS: Consistent with Joint Commission Standards, this policy is to be reviewed at least every 3 years and as practice changes.	