CONTRAST ALLERGY & PREMEDICATION

ALLERGIC-LIKE CONTRAST REACTIONS

- Allergic-like contrast reactions include urticaria, pruritus, cutaneous edema and erythema, itchy/scratchy throat, throat tightness, hoarseness, nasal congestion, sneezing, conjunctivitis, rhinorrhea, facial edema, dyspnea, wheezing/stridor, bronchospasm (without or without hypoxia) and anaphylactic shock (hypotension & tachycardia).
- Iodinated contrast risk – 0.6% (overall allergic-like), 0.04% (severe allergic-like) and 0.00059% (death).
- Gadolinium contrast risk – 0.01-0.22% (overall allergic-like), 0.008% (severe allergic-like) and 0.07-2.4% (any allergic-like or physiologic).
- The following circumstances generally increase the risk of an allergic-like reaction:
  - Patients with a prior reaction to contrast have a 5-fold increased risk of a subsequent reaction when re exposed to contrast from the same class via the same route.
  - Patients with allergies to other substances (particularly multiple allergies) have a 2 to 3-fold increased risk of having a reaction when exposed to contrast.
  - Patients with asthma or anxiety and patients taking beta blockers may have an increased risk of allergy to contrast.
- Premedication is recommended in patients with a history of allergic-like reactions to a contrast agent who are to receive the same agent or a similar agent via the same route.
- Premedication does not prevent all allergic-like (break-through) reactions, particularly reactions in patients who have experienced a prior severe allergic-like reaction to a similar contrast agent. Premedicated patients have a 2.1% incidence of break-through reactions. Premedicated patients with a history of break-through reactions have a low risk of subsequent break-through reactions.
- Delayed reactions to contrast can occur anywhere from 30-60 mins up to 1 week following administration but are rare. Delayed reactions are primarily cutaneous (urticaria and/or rash).

PHYSIOLOGIC CONTRAST REACTIONS

- Physiologic reactions to contrast include transient warmth, flushing or chills, vasovagal reaction (hypotension and bradycardia), nausea, vomiting, chills, headache, dizziness, anxiety, altered taste, mild hypertension, hypertensive urgency/emergency, isolated chest pain, arrythmia, decreased myocardial contractility, pulmonary edema, convulsions and seizure.
- Premedication does not reduce the risk of physiologic reactions.

POLICIES & PREMEDICATION

- Premedication regimen and timeframe:
  - Requires the use of both a corticosteroid and an antihistamine.
  - There is no evidence to support a premedication duration of ≤4-5 hours (either oral or IV premedication administration).
  - The 4-hour premedication timeframe is only to be used in truly urgent cases as determined by the ordering provider. The ordering provider must discuss the case with the supervising radiologist. The order for the contrast must be signed back to the order provider.
  - The 1-hour premedication timeframe is only to be used in truly emergent cases where there is an immediate threat to life or long-term disability as determined by an ordering provider. The ordering provider must discuss the case with the supervising radiologist. The ordering provider (or his/her designee) who is trained to manage contrast reactions (including anaphylaxis) must be present in the immediate vicinity of the scan room during and following contrast administration. The order for the contrast must be signed back to the order provider.
- Premedication is not indicated or required in the following circumstances:
  - A prior allergic-like reaction to IV iodinated contrast is not a contraindication to oral iodinated contrast administration.
  - Iodinated contrast administration (via any route) is not contraindicated in a patient with a history of shellfish or topical iodine allergy.
  - A patient with a history of allergic-like reaction to iodinated CT contrast when the patient is to receive gadolinium MR contrast (or vice versa).
- Risks of premedication include transient leukocytosis, transient (24-48 hr) and usually asymptomatic increase in blood glucose, questionable increase risk of infection, drowsiness (with antihistamines), allergy risk to the premedication drugs themselves and most significantly a delay in diagnosis / increased length of stay.
- Using a different contrast agent within the same class (Omnipaque versus Visipaque) may reduce the incidence of a subsequent reaction in a patient with a prior reaction to the other contrast agent (assuming the patient still receives premedication).
- Barium, CitraSelect or Volumen can be used in non-premedicated patients who have had a prior reaction to iodinated oral contrast.

PREMEDICATION REGIMENS

	Corticosteroid		Antihistamine
13 Hour Protocol	prednisone 50 mg PO **OR** dexamethasone 6 mg PO/IV (13, 7 & 1 hrs prior)	**AND**	diphenhydramine 50 mg PO/IM/IV (1 hr prior) consider 25 mg if ≥65 years old
12 Hour Protocol	methylprednisolone 32 mg PO/IV **OR** dexamethasone 6 mg PO/IV (12 & 2 hrs prior)	**AND**	diphenhydramine 50 mg PO/IM/IV (1 hr prior) consider 25 mg if ≥65 years old
Urgent 4 Hour Protocol	methylprednisolone 32 mg PO/IV **OR** dexamethasone 6 mg PO/IV (4 hrs prior)	**AND**	diphenhydramine 50 mg PO/IM/IV (1 hr prior) consider 25 mg if ≥65 years old
Emergent 1 Hour Protocol	methylprednisolone 32 mg IV **OR** dexamethasone 6 mg IV (1 hr prior)	**AND**	diphenhydramine 50 mg PO/IM/IV (1 hr prior) consider 25 mg if ≥65 years old
Peds Protocol	prednisone 0.5 mg/kg PO **OR** dexamethasone 0.1 mg/kg PO/IV (13, 7 & 1 hrs prior)	**AND**	diphenhydramine 1.25 mg/kg PO/IM/IV (1 hr prior)

Diphenhydramine alternatives:

Cetirizine 10 mg po 1 hour prior

Loratadine 10 mg po 2 hours prior

Fexofenadine 180 mg po 2 hours prior