RADIOLOGY of INDIANA

REGIMEN FOR STEROID PRE-MEDICATION FOR INTRAVASCULAR CONTRAST

Rational

In patients with a prior idiosyncratic reaction to intravascular iodinated, non-ionic, and gadolinium contrast material, there is an increased risk of reaction upon re-exposure. In addition, patients with a medical history indicating a strong pattern of hypersensitivity reactions may also be at increased risk for an idiosyncratic reaction to intravascular contrast material, even if not previously exposed. It is acknowledged that the occurrence of these reactions tends to be unpredictable and can occur in patients with no predisposing history. In addition, there is considerable variability among various radiology departments in how these patients are managed and pre-medicated. Nevertheless, in the hope of bringing some consistency to the management of these patients within our own department, these general guidelines have been developed, subject to modification in individual cases by the supervising radiologist.

Method

1. Patients who report a history of a prior sensation of heat, flushing, or nausea and/or vomiting do not require pre-medication, nor do patients allergic to topical povidone-iodine.

2. Patients with a history of a mild reaction or with a mild allergic history (i.e. a single hive, vasovagal reaction, food or medication allergies, or asthma), do not usually require pre-medication.

3. Patients with a history of a severe reaction (bronchospasm, facial or laryngeal edema, hypotension, or full-blown anaphylactic reaction) should not be given intravascular contrast material if an acceptable alternative imaging test can be identified to answer the questions at hand. In cases where no alternative is acceptable, contrast media should be given only after discussion by the radiologist with the referring physician. In addition to the pre-medication regimen described below, the presence of an anesthesiologist during the exam may be desirable.

4. **REGIMEN FOR BENADRYL ONLY:**
   Although optional, patients who have had a few hives previously may be pre-medicated with diphenhydramine (Benadryl) 25-50mg p.o. one hour prior to the exam if someone is available to drive the patient home. A different non-ionic contrast medium should be tried, if possible.

5. **REGIMEN FOR STEROID & BENEDRYL PRE-MEDICATION**
   In patients who have had more extensive urticaria (hives), diffuse erythema, or itching eyes, or when the radiologist for any reason feels that the prior history of previous reaction or the unusually severe history of allergies or asthma places the patient at higher risk of contrast reaction, steroid pre-medication may be ordered, usually with diphenhydramine. There are 2 choices for recommended premedication regimens. One involves a total of 150 mg prednisone, and the other involves a total of 64 mg prednisolone (equivalent to 80 mg prednisone). Both regimens have proven effectiveness in published, peer-reviewed reports. These are the 2 choices:

RECOMMENDED PREMEDICATION REGIMENS (CHOICE OF 2)

1. Prednisone-based: 50 mg prednisone by mouth at 13 hours, 7 hours, and 1 hour before contrast medium administration, plus 50 mg diphenhydramine intravenously, intramuscularly, or by mouth 1 hour before contrast medium administration.

OR

2. Methylprednisolone-based: 32 mg methylprednisolone by mouth 12 hours and 2 hours before contrast medium administration. 50 mg diphenhydramine may be added as in option 1.

Accelerated IV Premedication (in decreasing order of desirability)

The accelerated protocols are for **EMERGENCY PATIENTS** who cannot delay CT for 12-13 hours as required for one of the standard premedication regimens described above.

1. Methylprednisolone sodium succinate (e.g., Solu-Medrol®) 40 mg IV **or** hydrocortisone sodium succinate (e.g., Solu-Cortef®) 200 mg IV immediately, and then every 4 hours until contrast medium administration, plus diphenhydramine 50 mg IV 1 hour before contrast medium administration. This regimen usually is 4-5 hours in duration. **OR**

2. Dexamethasone sodium sulfate (e.g., Decadron®) 7.5 mg IV immediately, and then every 4 hours until contrast medium administration, plus diphenhydramine 50 mg IV 1 hour before contrast medium administration. This regimen may be useful in patients with an allergy to methylprednisolone and is also usually 4-5 hours in duration. **OR**

3. Methylprednisolone sodium succinate (e.g., Solu-Medrol®) 40 mg IV **or** hydrocortisone sodium succinate (e.g., Solu-Cortef®) 200 mg IV, plus diphenhydramine 50 mg IV, each 1 hour before contrast medium administration. This regimen, and all other regimens with a duration less than 4-5 hours, has no evidence of efficacy. It may be considered in emergent situations when there are no alternatives.

Note: Premedication regimens less than 4-5 hours in duration (oral or IV) have not been shown to be effective. The accelerated 4-5-hour regimen listed as Accelerated IV option 1 is supported by a case series and by a retrospective cohort study with 828 subjects

Sample Pediatric Corticosteroid and Antihistamine Premedication Regimen

	Dosage	Timing
Prednisone	0.5–0.7 mg/kg PO (up to 50 mg) 1	13, 7, and 1 hr. prior to contrast injection
Diphenhydramine	1.25 mg/kg PO (up to 50 mg)	1 hr. prior to contrast injection

Note: Appropriate intravenous doses may be substituted for patients who cannot ingest PO medication.

Reference: ACR Manual on Contrast Media – 2021

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