**INTRAVENTOUS ACCESS AND CONTRAST MEDIUM IN CT**

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**Contrast enhanced examination goals**

- Appropriate for patient and indication
- Minimize likelihood of reaction/complications
- Early detection and adequate preparation for complications

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**Screening form**

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Outpatients
Please complete.

Weight: ____________________

Have you ever been diagnosed with any of the following:

☐ asthma ☐ heart disease ☐ sickle cell anemia ☐ pheochromocytoma ☐ multiple myeloma

What time did you last eat or drink? ____________________
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**Allergy**

- Shellfish/seafod allergy is no longer relevant
- Prior allergy increases risk five folds
- Use extreme caution with patients who had past severe reactions to other allergens
- Always ask for the type and severity of reaction
- History of Asthma increases risk for reaction

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**Other factors that can increase risk for reactions**

- Renal insufficiency, CIN and NSF
- Symptomatic angina and CHF, Severe aortic stenosis, Pulmonary hypertension
- Increased anxiety and Age
- Multiple myeloma patient may experience irreversible renal failure (tubular protein aggregation and precipitation)
- Sickle Cell trait- Per ACR there is no significant risk
- Pheochromocytoma (increase in catecholamines that may lead to hypertensive crisis)
- Carcinoma of the thyroid (interferes with radioactive Iodine therapy) and thyroid disease (delayed hyperthyroidism in 4-6 weeks)
**Vascular Access**

**HIGH FLOW**
- Location of catheter
- Size
- Age
- Try not to inject in hand
- Look for good flushback
- Least resistance when flushed
- Site free of redness, edema, clearly visible
- Remove extra tape
- Check at the hub
- Do not rush
- Central line- Kind of catheter

**LOW FLOW**
- Benefit from ability to monitor
- Slower rate
- Exercise caution when using wrist IV
- Do not use PICC line if no blood return, low flow does not prevent clot from dislodging

**Prior to Injection**

- Identify the patient using 2 identifiers
- Order for the exam
- IV access and connection at the hub
- Latest Creatinine (For all hospitalized patients)
- Air in line or the injector (prevent venous air embolus)
- Respond to patient’s questions and alleviate anxiety

**Extravasations**

- Range from 0.1% to 0.9% (1/1,000 patients to 1/106 patients)
- Inflammatory response may peak in 24-48 hours
- Watch for compartment syndrome (result of mechanical compression)
- Skin ulceration and tissue necrosis can occur as early as 6 hours
- One study by Wang reports 1 in 442 extravasations experienced severe complication (compartment syndrome)

**Extravasations treatment**

- Elevate the extremity
- Use either cold or warm compress
- Cold better for pain control and warm better to improve blood flow and absorption
- Our policy is to use warm compress
- Do not try to aspirate fluid from the site
- We do not have written instructions for patients at this time
- Talk to your patient and act confident

**Premarkedications**

- Prednisone 50mg 13, 7 and 1 hr and Benadryl 50mg 1 hr prior.
- Methylprednisolone (Medrol) – 32 mg PO 12 and 2 hr prior or 200 mg of hydrocortisone IV. May add antihistamine
- Emergency premeds: Solu-Medrol 40mg or Solu-Cortef 200 mg IV every 4 hrs and Benadryl 50 mg 1 hr prior
- Whenever possible steroids (oral or IV) should be given a minimum of 6 hr prior

**Metformin**

- Intake causes Lactic Acidosis in 0-0.08 cases per 1000 patient years
- 50% mortality rate reported with acidosis
- 90% eliminated via kidney in 24 hours
- IV contrast a concern when other underlying renal issues present
- Try to limit amt of contrast & encourage hydration
- No co morbidities-no need to discontinue
- Co morbidities- Discontinue for 48 hours post injection, encourage patient to have repeat cr
**Allergic Reaction**

- Do not wait for the RN - call RRT or Code for severe reaction
- Start with basics: ABC
- Get the med box
- Epi
- Benadryl
- Steroids
- Pepcid
- Albuterol
- Time is critical - airway can close completely
- Air embolus a concern
- Seizures, hypoglycemia, vagal reaction

**Air Embolus**

(paradox embolism into systemic circulation through shunt [e.g., patent foramen ovale])

Gated CT venogram to evaluate for residual thrombus

**Perception of Care**

- What patients remember from their CT scan is probably the IV.
- Talk to your patient
- Talk to colleagues
- Communicate
- Communicate
- Communicate

**Did you know?**

- Patients that were informed about IV contrast and those who were not scored equally on the Anxiety scale
- Beta blockers lower the threshold for and increase the severity of contrast reactions
- Heparin may be combined with contrast medium
- IV site with multiple punctures and IV older than 24 hours has increased risk of extravasation

**ANY QUESTIONS???