

UC Health Radiology Section Contrast Conservation Plan

Neuro

- CTA head/neck are to be done with 75 mL IV contrast.
- All CT of other neuro ordered with contrast are to be done with 75 mL IV contrast with a **careful attention to delay specified in the protocol**, for example we do not want a head scanned too early after contrast
- Neck CT: 350 only
 - o Less than 100 lbs.: 75 mL
 - o 100-200 lbs.: 100 mL
 - o 201-250: 125 mL
 - o 251+: 150 mL
- 300 OK for CT Head w/ and CT Face w/

Body

- Use Redicat for oral Omni 240 – use one bottle per patient
 - o Until Redicat supply – use 25cc to dilute to the same volume for oral
- For patients with CTA's and multiphasic studies (triphasic liver, biphasic pancreas), use Omni 350 (use P3T as usual)
- If you are going to use Omni 300 (depending on availability) For other patients with routine portal venous phase imaging, use Omni 300 (without P3T) with the following algorithm:
 - o Weight 125-200 lb – 125 cc at 2.5 cc/sec
 - o Weight 201 lb or greater – 150 cc at 3 cc/sec
- For patients 125 lb or less – use 100cc Omni 300 at 3 cc/sec
- For renal imaging and CTU – use 150 cc Omni 240
- **Request:** as many protocols as possible will use 100 cc omni 350, please pay attention to the comments in the protocol. I have specified 100cc when I could – some have a 20 cc saline chaser. There are a couple of instances where I specified Omni 240 since the interest was excretory.)
- **ED & IP**
 - o abd/pelvis CT with contrast for abdominal pain (if they need iv contrast) - use 100 cc Omni 350
 - o chest/abd/pelvis CT (if NO neuro CTA) then 100 cc Omni 350
 - o chest/abd/pelvis CT with neuro CTA still use 150 cc Omni 350 as a split bolus
 - o abd/pelvis CT with CTPA - use TOTAL 100 Omni 350
 - o For sepsis workups - NO iv contrast unless there is a high suspicion of solid organ abscess, use oral if possible (we will need to discuss if IV contrast in this situation needs to be approved).

Chest

- Chest CT evaluating lungs primarily performed w/out contrast
- Oncologic CT scans in which there is low risk of mediastinal involvement should be performed without IV contrast
- 75 mL cap on Chest protocols
- CTA for sizing can be performed as non-con or MRA
- CTA for dissection:
 - o Non-con: techs call RR for review
 - o If no AA- 75cc contrast. If AA- 150cc contrast
- Coronary evaluation can be done as different modality
- Look for recent priors for routine follow up orders – attempt to reduce additional scan if recent prior exists.

- We will use Omni 300 primarily for non-angiographic studies (excluding liver and pancreas or other abd studies that prohibit its use in case of a Chest abd pelvis exam). In combined studies we will let Body choose contrast as chest can be done non-con or with little contrast.
- We will not use Omni 300 for angiographic exams unless the patient is small (BMI < or =30) where we can use Omni 300 with reduced kV.

IR

1. ... Techs will not open any contrast or load any injector until the start of the case after discussing with the attending performing the case to plan for contrast utilization.
2. Use half and half contrast (or more dilute, if possible, especially in smaller patients) for procedures and in injectors for all angiograms. Load injectors with at least half and half contrast up to 50 mls (25 mls of contrast).
3. Use a sterile cup while prepping injector tubing to save contrast and avoid waste. Contrast recovered in the cup can be used.
4. Consider hand injections for angiograms if it will save contrast.
5. Use digital options on Siemens and Phillips machines to adjust the contrast and brightness of the images to improve visualization of vessels.
6. DONOT open any contrast on the table for non-angiographic cases like abscess drains, etc. If contrast is needed, only open 20-25 mls (or less) so 50 ml bottles will be split between two cases or more.
7. Consider not using contrast for simple cases like abscess drains or chest tubes that can be performed safely without contrast.
8. Open only 5-10 mls for G tube, GJ exchanges, nephrostomy exchanges, PTBD exchanges, etc.
9. Consider CO2 angiography such as for IVC filter placements (if no PFO).
10. Inflation devices to be filled with 10-20% contrast concentration (usually very visible at this dilute concentration).
11. Use Conray for inflation devices (pending Conray supply levels update).
12. Use Conray for non-angiographic procedures such as abscess drains and nephrostomy placements (again pending Conray supply levels update).
13. Secure contrast cup on the procedure table to avoid spillage. Best to place the contrast cup in the sterile blue bowl that comes with the tray on the table. If spillage happens contrast can be recovered from the blue bowl.
14. Do not use contrast manifolds as this wastes contrast (line wastes from prep can be up to 10-25 mL).
15. Consider using CT guidance for specific procedures where CT is equally effective and will not need contrast if CT guided.
16. Consider being conservative about contrast choice especially for Visipaque.

Please note that patient safety comes first, so the above steps should not compromise patient safety, and if you feel that it might, please use best clinical judgement to use contrast as necessary.

Plan for escalation in the future if the situation worsens and contrast supply reaches CRITICAL levels (will NOT to be implemented at the moment and will have to be carefully discussed with our hospital leaders and both neuro and body IR attendings before being implemented. Below is just a draft for a second backup plan):

1. Use Gadolinium for simple cases that needs small amount of contrast.
2. Postpone/reschedule elective outpatient procedures that needs contrast and prioritize urgent/emergent inpatients.
3. Postpone/reschedule elective inpatient procedures that needs contrast that can be done at a later date as outpatient and is not discharge dependent.

4. Consider discussing with referring providers if needed information can be obtained by other modalities such as vascular ultrasound or MRV instead of a venogram.
5. Increase follow-up duration for specific procedures such as abscess drains, nephrostomy, G and GJ patients, PTBD, etc follow-ups, to move their procedures more into the future.
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Fluoro

- Gastrografen available
- Conray available upon inquiry

Endoscopy

Omnipaque 50ml bottles 300mg/ml

- Draw up only what is needed
- Finish using one syringe before attaching another one.
- Do not throw away contrast that is drawn up and labeled but unused.
- Use dilute contrast when possible (i.e. stone cases)
- Consider using water rather than contrast for balloon dilation of strictures
- Use Gastrografen (if available) instead of omnipaque in the lumen to define strictures prior to duodenal stent placement.

Cath Lab

- Cardiac attending physicians will consider use of stress testing on all low-risk cardiac patients.
- Imaging requiring the use of Power injectors will be limited and discussed prior to loading the equipment. (Consider the use of hand injection when LV gram is required.)
- 20 mL of contrast will be dropped on the table for all procedure requiring an inflation device. (Instead of 50 mL bottle)
- Usage of CO2 will be considered for all peripheral procedures.
- Maximum dilution of contrast will occur for all angiography imaging.
- The manifold contrast port can be removed limiting the amount of wasted when prepping the line.

OR

- Vascular: will follow cath lab plan
- General, Urology:
 - o Consider using CO2 when appropriate.
 - o In addition to the 20 mL the pharmacy will provide 10mL as well with dilution as appropriate.
 - o No contrast will be opened until it is determined that it is needed

Other strategies:

- Diversify contrast for reserves:
 - o Isovue
 - o Gastrografen / Hypaque
- Combine smaller volume vials into larger volume syringes

