

Global IV Contrast Shortage Plan

As we all know by now there is a global IV contrast shortage due to plant shutdowns in Shanghai. To mitigate the risk of depleting our limited reserves the department of radiology has initiated a temporary limitation of use of contrast enhanced CT examinations for the month of May and June. This is primarily focused on outpatient non-emergent and non-urgent scans that can be rescheduled at a later day or when appropriate, a non-contrast exam can be performed instead.

One of the main goals of this temporary limitation of use on the outpatient side is in part to minimize the impact of contrast use in the emergency setting and for STAT inpatient CT exams.

It is difficult to broadly limit the use of contrast usage in the emergency setting as there are many unknown and it will not generally apply to high-energy trauma evaluation, code stroke, evaluation of known abscesses (particularly peri-pancreatic and hepatobiliary), and high-probability PE exams and dissection cases. Temporary limited use of IV contrast can be considered in the following cases:

1. Low-energy trauma evaluation (fall from standing height) can be generally performed with a non-contrast CT of chest/abd if warranted. Since many of these patients are elderly and ALARA (radiation risk) is not as important, we can always re-scan them if we see something that might require contrast in the emergency setting. Example would be a large hematoma requiring rule-out of active bleeding.
2. For the time being I propose temporarily limiting the use of contrast for the evaluation of suspected acute appendicitis and diverticulitis as many of the findings are not contrast dependent for diagnosis. Evaluation for abscess in known cases of clinically worsening diverticulitis are rare and contrast may be given. While many patients have ample amount of intra-abdominal fat, contrast may be given when acute bowel pathology is suspected in thin, low BMI patients.
3. We perform many CTPA with primary indication of "pneumonia, unresolved" or for the evaluation of airspace disease in the emergency department. If pulmonary infection, aspiration, or pneumonia is suspected clinically, we should curtail the use of contrast and obtain a non-contrast CT of chest instead for these instances. Additionally, VQ scan can be temporarily utilized if patients are low-probability for PE with a positive d-dimer.
4. While renal stone CTs are commonly performed without contrast, sometimes contrast enhanced CTs are requested for suspected pyelonephritis. In the acute setting of suspected pyelo, while contrast is generally helpful, it is not always necessary as between clinical and laboratory findings, and indirect CT findings (perinephric stranding, urothelial thickening) the diagnosis can be narrowed.

Again, caveat would be evaluation of known worsening pyelonephritis, in which case contrast will be necessary to evaluate for renal abscesses.

5. Temporarily, I will ask the EM physicians and other providers to risk stratify low-risk, low-acuity patients in need of CTAs of head and neck (e.g. headache, ?TIA, dizziness) as the yield of CTAs for these indications is very low. This of course does not apply to code strokes, evaluation for blunt carotid/vertebral injuries, or penetrating trauma. If the patient presentation is low acuity and pre-test probability of a positive CTA is low, many of these patients can be evaluated with a TOF MRA of head and neck either in the ED if time and availability permits, or as outpatients.
6. Evaluation of soft tissue infections in extremities (arms, forearms, thighs, calves, large joints) is often low yield, and many abscesses larger than 1-1.5cm are often detectable with a non-contrast CT. Thrombophlebitis, if questioned, can be further evaluated with focused US. If we require further evaluation of a packet of fluid on a non-contrast CT, we can always characterize it with US or MRI if necessary and if required by ortho for drainage (uncommon scenarios in general). Hand and foot infections are better evaluated with MRI as CT with or without contrast (while faster and more available) is not the best exam for small anatomy and small joints.

This is by no means a comprehensive list of temporary limited use of contrast in the ED and if you have any questions, comments, or reservations, please contact me or Dr. Rybicki.

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