POLICY

The Integrated Medical Imaging Department must identify patients at risk for Contrast Induced Nephropathy (CIN) and take appropriate measures to prevent CIN for patients receiving intravascular iodinated contrast media.

This clinical practice guideline applies to all Medical Imaging Staff involved in pre-screening adult patients for intravascular contrast media injection.

**Applicability:** Intravascular contrast administration occurs in the Integrated Medical Imaging Department.

PROCEDURE

1.0 Risk Factors for CIN

Contrast induced nephropathy (CIN) is an acute decline in renal function that occurs 48 to 72 hours after intravascular injection of contrast medium. Patients with the following conditions are at risk:

- Diabetes mellitus
- Renal disease or solitary kidney
- Sepsis or acute hypotension
- Dehydration
- Age > 70 yrs
- Previous chemotherapy
- Organ transplant
- Vascular disease
- Patients on Metformin
  - Patients can continue taking this drug up to the time of the intravascular contrast injection.
  - If the eGFR is greater than or equal to 60 mls/min, the patient can continue Metformin after the injection of contrast media. The very minimal risk of CIN and Metformin induced lactic acidosis is outweighed by the risk of stopping Metformin.
  - If the eGFR is less than 60 mls/min, Metformin should be stopped for 48 hours following intravascular contrast injection. Metformin therapy can be restarted if renal function is similar to baseline (less than 25% decrease in eGFR from baseline)
- Patients on Nephrotoxic Drugs
  - When possible nephrotoxic drugs should be withheld 48 hours prior to IV contrast injection for patients with eGFR less than 60 mls/min. The referring physician needs to determine if the nephrotoxic drugs can be safely withheld. Examples of nephrotoxic drugs include:
    - NSAIDs
    - Amphotericin B
    - Aminoglycoside antibiotics
    - ACE inhibitors
    - Diuretics
    - Vancomycin
    - Some chemotherapy drugs

2.0 Screening

- Medical Radiation Technologists and/or Nurses must screen each patient prior to administering contrast media.
All patients receiving intravascular contrast will complete, or have completed for them a pre-screening questionnaire prior to the examination.

- All inpatients require SCr and eGFR within 72 hours of scheduled procedure
- All outpatients require SCr and eGFR within 3 months of scheduled procedure

### 3.0 Risk Assessment and Prophylactic Strategies

<table>
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<tr>
<th>eGFR ≥ 60 mls/min</th>
<th>eGFR 30 to 59 mls/min</th>
<th>eGFR ≤ 30 mls/min</th>
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- Avoid dehydration
- No specific intervention needed. Proceed with examination

- Avoid dehydration
- Hold nephrotoxic drugs (NSAIDs, ACEi, ARB's and diuretics) for 24 to 48 hours prior to IV contrast
- Stop Metformin therapy for 48 hours following intravascular contrast injection
- Follow up SCr and eGFR in 48 to 72 hrs
- Metformin therapy can be restarted if renal function is similar to baseline (less than 25% decrease from baseline)
- Consider alternate imaging examinations not involving contrast media
- Minimize contrast volume
- Avoid repeat iodinated contrast exams within 48 hrs

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- IV hydration recommended
- Radiologist to discuss examination with referring physician.
REFERENCES

