

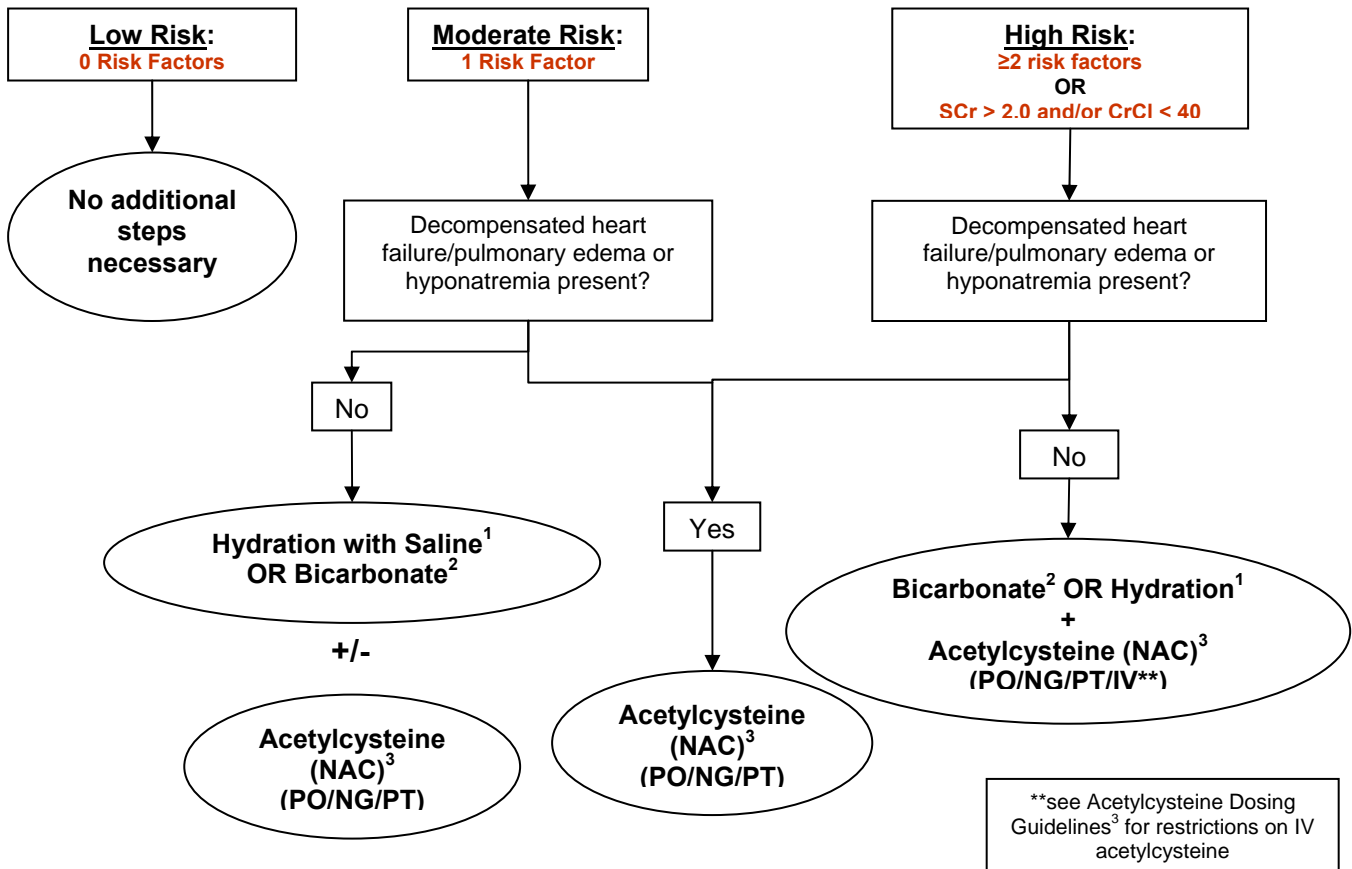
Guidelines for Contrast-Induced Nephropathy (CIN) Prevention in Adults



CIN is a common cause of acute renal failure in hospitalized patients. Radiocontrast media has been associated with an increase in morbidity, mortality, and costs of medical care during hospitalization as well as prolongation of hospital stay. This nephropathy can result in the need for dialysis treatment and lead to chronic end-stage renal disease for patients with preexisting renal dysfunction or risk factors for the development of CIN. Multiple prevention strategies have been investigated with varying results. Based on this data, the following algorithm has been developed to assist with selecting the most evidenced based strategies to prevent CIN. **However, the most important strategy to prevent CIN is to avoid or minimize the use of contrast dye.**

**Patients receiving contrast dye:
CT scan, angiogram, or heart catheterization**

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| <ul style="list-style-type: none"> • Hypotension (SBP < 80 mmHg) • Heart Failure (NYHA III/IV) • Use of intra-aortic balloon pump (IABP) • Preexisting renal dysfunction
SCr>1.5 mg/dl <u>OR</u> CrCl <60 ml/min • Age ≥ 75 years • Diabetes | <p>Risk Factors:</p> <ul style="list-style-type: none"> • Hematocrit < 39% for men, or < 36% for women • Dehydration • Concomitant use of nephrotoxic drugs and/or renal perfusion reducing agents
ACEI's, Aminoglycosides, Vancomycin, Diuretics, NSAID's, etc |
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¹Hydration with Saline Guidelines

IVF = 1 mL/kg/hr (**MAX** 100 ml/hr) 12 hours pre & 12 hours post contrast* (24 hour total infusion duration)
(*NS preferred IVF but MD can modify based on clinical status of patient)

CHF or left ventricular ejection fraction (LVEF) < 40%?

0.5 ml/kg/hr (max 50 ml/hr) 12 hrs pre & post contrast (24 hour total infusion duration)

Emergent procedure? (suggested regimen):

Fluid bolus of 500-1000 ml prior to procedure. Hydration during procedure and/or 12 hrs after if possible (dependent on clinical status)

²Bicarbonate Dosing Guidelines

IVF = 150 meq of sodium bicarbonate in 1 liter of D5W

3 ml/kg bolus (**MAX** 300 ml) 1 hour prior to procedure AND 1 mL/kg/hour (**MAX** 100 ml/hr) during and for 6 hours post-procedure

Glycemic control issues (including patients with diabetes)?

Consider mixing sodium bicarbonate in 1 liter of sterile water instead of D5W

³Acetylcysteine Dosing Guidelines

Tolerating PO intake?

600-1200 mg capsules PO Q12h X 4 doses
2 doses pre-contrast and 2 doses post-contrast is optimal

Feeding tube or NG-access?

Acetylcysteine 600-1200 mg (3 mL of 20% soln.) liquid PT/NG Q12h x 4 doses total

Emergent Procedure?

1 dose before and 3 doses post cath or procedure is acceptable (Q12h x 4 doses total)

IV Acetylcysteine?

600-1200 mg IV x 1 over 15 minutes, then 600-1200 mg PO/PT q12h x 4 doses post-procedure:
For a **high risk** patient undergoing cardiac catheterization or PE protocol CT scan with no PO access

****Monitor patient for anaphylactoid infusion reactions****

IV Alternatives:

- Ascorbic Acid 3 gm IV x1 dose 2 hours prior to procedure, then 2 gm IV BID x 2 doses post-procedure
- Aminophylline 300 mg IV x1 (infused over 1 hour) prior to procedure

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