Quick Reference Tool

Acute coronary syndrome (ACS) patients with chronic kidney disease being considered for cardiac catheterization

eGFR <60 mL/min/1.73m^2

Assessment

- **Assess** kidney function by serum creatinine/eGFR in patients with ACS prior to referral for cardiac catheterization unless referral is on an emergent basis.
- **Use** the ***Mehran risk prediction tool*** (see other side) to facilitate discussion with ACS patients regarding the risk of acute kidney injury and dialysis following contrast exposure.

Referral

- **Note** serum creatinine/eGFR and risk of contrast induced nephropathy on cardiac catheterization referral form.

Preparation

- **Repeat** serum creatinine/eGFR within ***24 hours of cardiac catheterization*** **IF** patient is clinically unstable, is receiving furosemide or has new or worsening kidney dysfunction.
- **Withhold** the following medications **IF** clinical circumstances permit:

  24 hours before contrast exposure: metformin, ACE inhibitors, angiotensin receptor antagonist, loop diuretics*, non- steroidal anti-inflammatory agents

  48 hours before contrast exposure: amphotericin, amnioglycosides, vancomycin
- **Ensure** optimal pre-procedure hydration* (0.9%NaCl at 1 mL/kg/hr) for 12 hours prior to cardiac catheterization

* CAUTION in patients with heart failure or poor left ventricular ejection fraction (less than 35%)

During procedure

- **Use** low/iso-osmolar non-ionic contrast media.
- **Use** the lowest possible volume and concentration of contrast without compromising image quality.

Follow up

- **Reassess** serum creatinine and eGFR 48-72 hours following contrast exposure.
- **Restart** any withheld medications based on reassessment of renal status.

Contact

Contact the Cardiology Bed Manager or Triage Cardiologist (902-473-2220) **IF** there is uncertainty about benefit of cardiac catheterization outweighing the risk of kidney injury.

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Mehran Risk Score

Note: A contrast nephropathy risk calculator based on the Mehran risk score is available as an APP on iTunes.

Mehran Risk Score		Patient's Scores
Risk Factor	*Integer Score*	
Hypotension	**5**	
Intra Aortic Balloon Pump	**5**	
Congestive Heart Failure	**5**	
Age > 75	**4**	
Anemia	**3**	
Diabetes	**3**	
Contrast media volume	**1** for each 100 mL	
Serum Creatinine > 1.5 mg/dl (133 umol/L) OR eGFR < 60 mL/min/1.73 m^2	**4** **2** for 40-60 mL/min/1.73 m^2 **4** for 20-40 mL/min/1.73 m^2 **6** for < 20 mL/min/1.73 m^2	

Risk Score	Risk of Dialysis
≤ 5	0.04%
6 to 10	0.12%
11-16	1.09%
≥ 16	12.6%

Patient's Total Score

Risk of dialysis

Medications to be withheld before and after cardiac catheterization IF eGFR <60 mL/min/1.73m^2

Nephrotoxic Medications	Serum creatinine/eGFR to be rechecked 48-72 hours after contrast exposure and medications restarted based on results of this test result.	
	Preferable # hours to stop before contrast exposure	
ACE inhibitors	24 hours	
Amphotericin	48 hours	
Aminoglycosides	48 hours	
Angiotensin receptor antagonist	24 hours	
Loop diuretics	24 hours	***Special instructions:*** In patients with heart failure or poor left ventricular function (EF < 35%), the responsible physician should carefully consider the risks and benefits of withholding loop diuretic therapy.
Non-Steroidal anti-inflammatory agents	24 hours	
Vancomycin	48 hours	
Other medications requiring caution		
Metformin	24 hours	***Special instructions:*** Metformin should not be restarted until renal function is shown to be stable at 48-72 hours post contrast exposure. There is an increased risk of lactic acidosis if the patient is taking metformin and develops contrast induced nephropathy.