American College of Radiology (ACR) 2021 Guidelines Update Summary on Contrast Safety

Prepared by Bayer

Changes	Details
Addition of Chapter 5 **Fasting Prior to Intravascular Contrast Media Administration**	• Given the potential for negative consequences due to fasting and a lack of evidence that supports the need for fasting, **fasting is not required prior to routine intravascular contrast material administration.** • However, for patients receiving conscious sedation, anesthesia guidelines should be consulted
Chapter 10 **Change in terminologies**	Post-contrast acute kidney injury (PC-AKI) **IS NOW** **Contrast-associated acute kidney injury (CA-AKI)** Contrast-induced nephropathy (CIN) **IS NOW** **Contrast-induced acute kidney injury (CI-AKI)**
Chapter 10 **Volume Expansion protocol recommendations to prevent CA-AKI made more concrete**	• Isotonic fluid such as **0.9% normal saline (NS) is preferred.** • Typical prophylaxis regiments begin **1 hour prior to the exam and continue 3-12 hours after.** Typical doses may be fixed volume (e.g., 500 mL NS) before and after or weight-based volumes (1-3mL/kg per hour) • The ideal infusion rate and volume is unknown
Chapter 10 **Addition of Indications & Contraindications for volume expansion to prevent CA-AKI**	**Indications** • Patients who have **AKI or severe CKD with an eGFR less than 30 mL/min/1.73m^2**, although the risks of volume expansion (i.e., heart failure or other hypervolemic conditions) should be considered before initiation. • Considered on an individual basis for **high-risk circumstances (e.g., numerous risk factors, recent AKI, borderline eGFR)** in patients with an eGFR of 30-44 mL/min./1.73m^2 at the discretion of the ordering provider **Contraindication** • General population of patients with stable eGFR greater than or equal to 30 mL/min 1.73 m^2 or patients on chronic dialysis.

Reference: ACR Manual on Contrast Media Version 2020 & 2021

AKI: Acute kidney injury CKD: Chronic kidney disease eGFR: Estimated glomerular filtration rate

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Changes	Details
Changes in Chapter 10 **Use of N-acetylcysteine & Sodium Bicarbonate for prevention of CA-AKI**	• Recent randomized trial showed that **N-acetylcysteine** was no more effective than placebo at preventing CA-AKI for intra-arterial iodinated contrast media administration and is therefore **not recommended** for intravenous contrast media prophylaxis • **Bicarbonate** is likely similar to normal saline for the prevention of CA-AKI, but it is **not preferred** due to the additional requirement for pharmacist compounding.
Renal Dialysis Patients and the Use of Iodinated Contrast Medium	• Patients undergoing dialysis who make more than 1-2 cups of urine/day (100 mL) should be considered **nonanuric and treated as high-risk patients** similar to patients with AKI or eGFR less than 30 mL/min/1.73m^2 who are not undergoing hemodialysis. • Patients **should not have acute dialysis nor continuous renal replacement therapy initiated or alter their schedule solely based on iodinated contrast media administration regardless of renal function** due to the risks, costs and lack of benefit.
Chapter 16 **Identifying patients at-risk of NSF**	• **Addition of -** History of **CKD** or prior history of AKI to the list • **Removal of -** History of **hypertension** requiring medical therapy from the list • **Changed to Optional -** History of **diabetes mellitus**
Chapter 16 **Calculating eGFR**	• Methods of calculating eGFR are in flux as efforts are underway to **remove race from clinical calculators.**
Chapter 16 **Changes made to Additional Specific Recommendations for Specific Groups of Patients- Patients with end-stage renal disease on chronic dialysis**	• The ACR & NKF recommend that in patients who are already receiving dialysis, if feasible, **elective GBCA-enhanced MRI examinations be performed before regularly scheduled dialysis.** • Due to the risks of catheter placement and infection, the possibility of worsening kidney function in patients with AKI and CKD, and the perceived very low risk of NSF from group II and III GBCM agents, **dialysis should not be initiated or altered in patients receiving a group II GBCM**

Reference: ACR Manual on Contrast Media Version 2020 & 2021

CA-AKI: Contrast-associated acute kidney injury *GBCA/GBCM: Gadolinium based contrast media*
NSF : Nephrogenic systemic fibrosis