SNS COLLEGE OF ALLIED HEALTH SCIENCE

Affiliated to The Tamil Nadu Dr. M.G.R Medical University, Chennai

DEPARTMENT OF CARDIAC TECHNOLOGY

COURSE NAME: CARDIAC CATHETERIZATION LABORATORY

ADVANCED

UNIT : 1

TOPIC : CONTRAST INDUCED NEPHROPATHY

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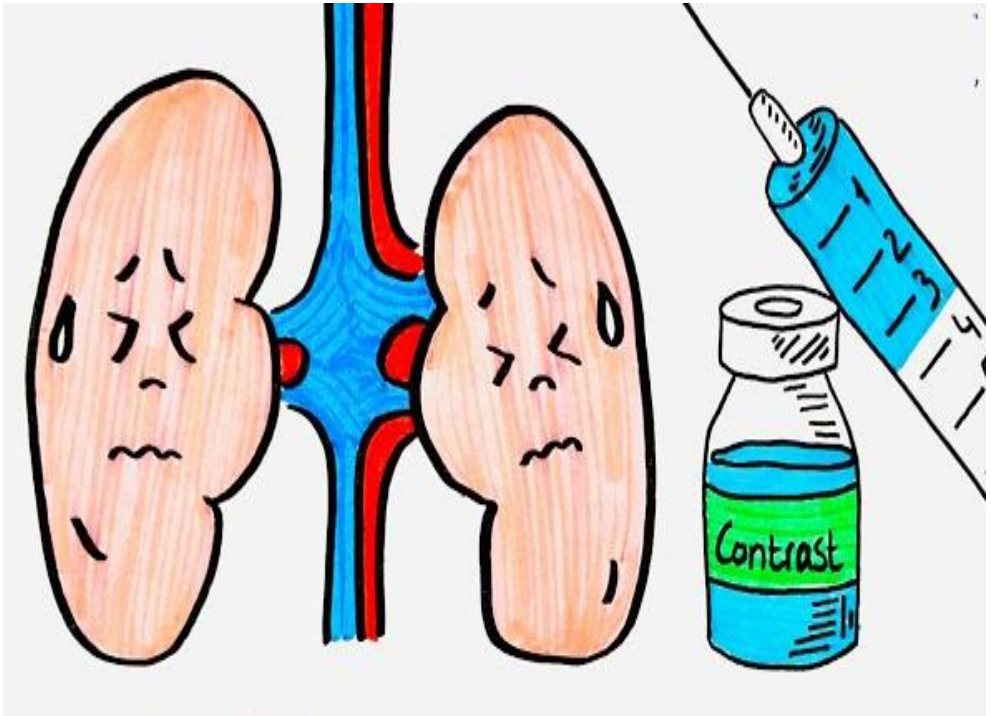
What is Contrast-Induced Nephropathy

Kidney injury that happens 2–3 days after iodinated contrast

(usually from coronary angiography or CT with contrast)



How Common?

- Normal patient: ~5%
- Diabetic + low kidney function: up to 30–50%
- With good prevention: <2–3% in most hospitals today

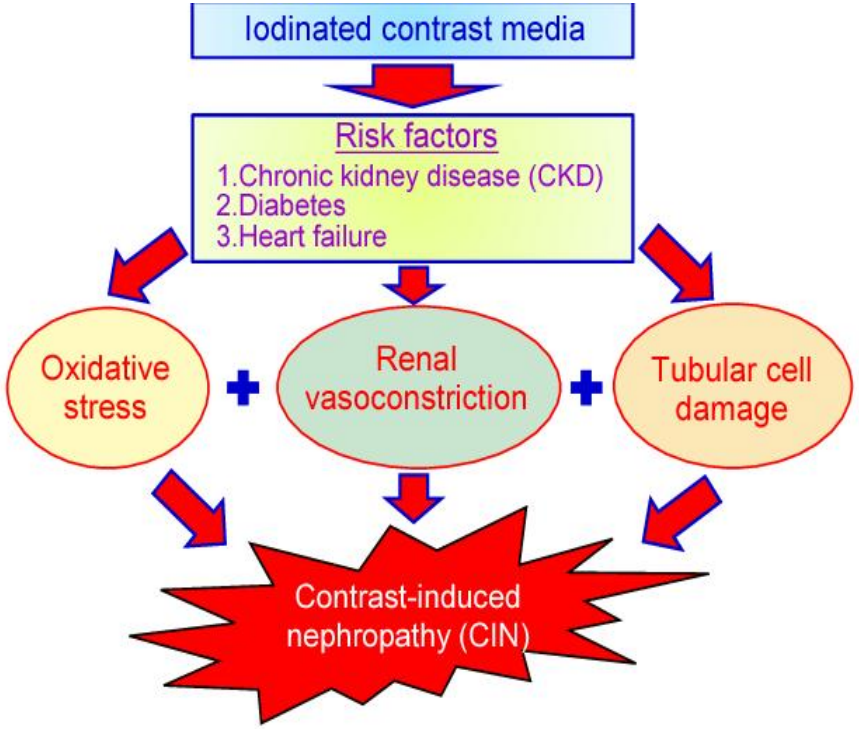
Classic Definition (still used everywhere)

- Serum creatinine rises by:
- → ≥ 0.3 mg/dL in 48 hours OR
- → ≥ 50% in 7 days

Why Does It Happen? (3 simple reasons)

- Contrast is toxic to kidney tubules
- Contrast makes kidney blood vessels squeeze

  → less oxygen
- Thick contrast blocks tiny tubes



Who is at HIGH Risk? (remember these 5)

- Low eGFR (<60, especially <30)
- Diabetes
- Old age (>75)
- Heart failure
- Low blood pressure / shock

RISK FACTORS FOR CIN:

Patient-related Risk Factors	Procedure-related Risk Factors
1.Renal insufficiency 2.Diabetes mellitus with renal insufficiency 3. Age 4. Volume depletion 5. Hypotension 6. Low cardiac output 7. Class IV CHF 8. Other nephrotoxins 9. Renal transplant 10. Hypoalbuminemia(<35 g/l)	1. Multiple contrast media injection within 72 hrs 2. Intra-arterial injection site 3. High volume of contrast media 4. High osmolality of contrast media

Which Contrast is Safer?

- Old high-osmolar (HOCM) → bad (almost never used)
- Modern low-osmolar (LOCM) → good, cheap, used in 90% cases
- Iso-osmolar (iodixanol) → slightly better only if very high risk

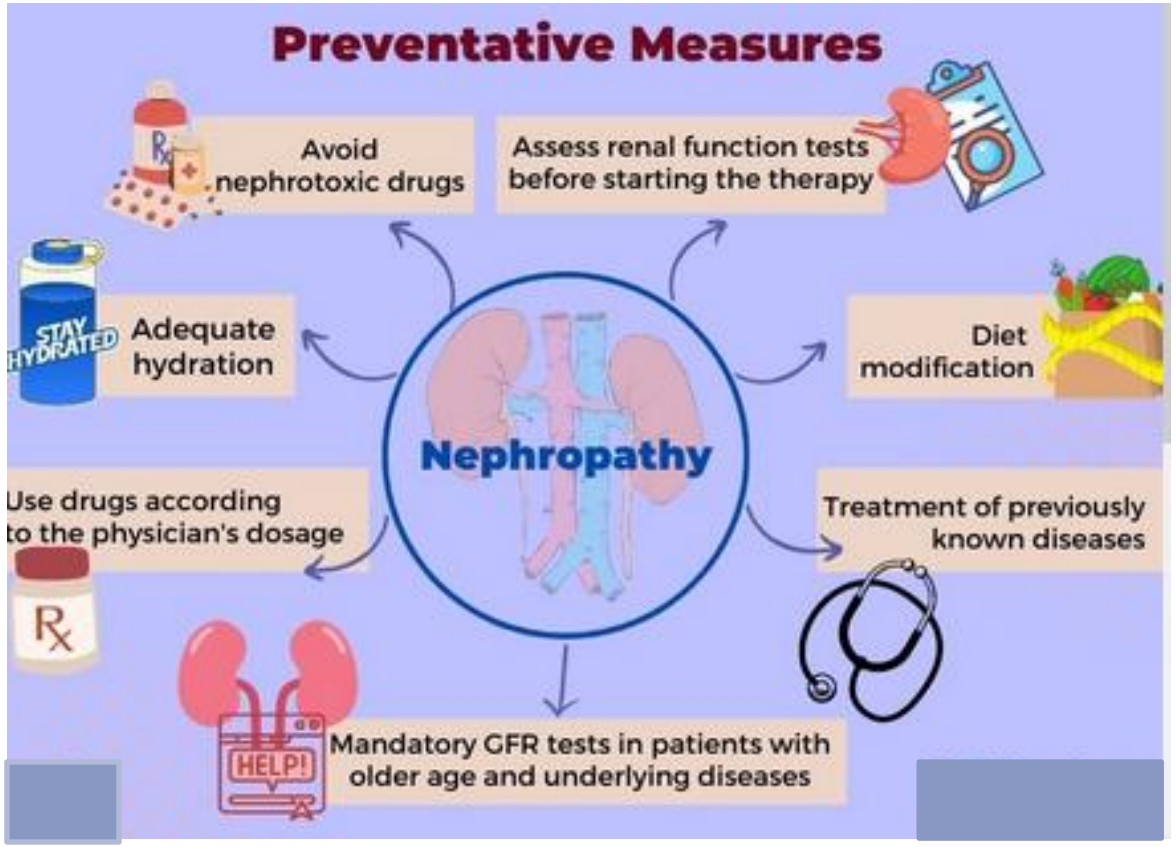
Only 2 Things That REALLY Work

Give less contrast

Give IV saline (hydration)

Hydration – Keep It Simple

- Normal patients: 1 mL/kg/hour saline for 6 hours before + 6 hours after
- Heart failure: 0.5 mL/kg/hour or slower
- Emergency case: at least 300–500 mL saline fast

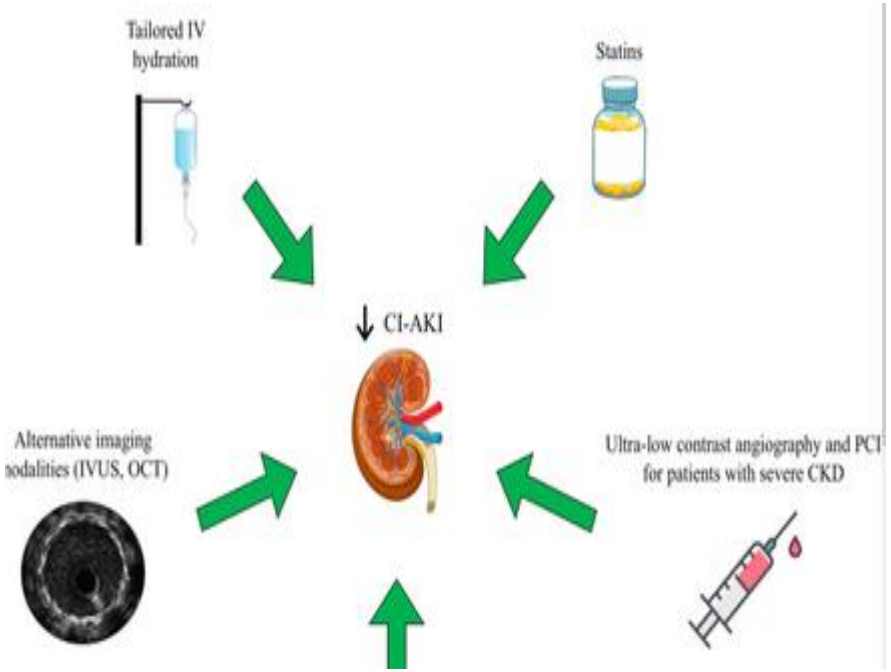


Things That Do NOT Work (stop ordering them)

- N-acetylcysteine (NAC)
- Sodium bicarbonate
- Statins (for prevention)
- Furosemide / mannitol
- Vitamin C, theophylline

Quick Checklist Before Procedure

1. Calculate eGFR
2. Ask: diabetes? heart failure? age?
3. Plan low contrast technique (IVUS, staging, etc.)
4. Start IV saline
5. Hold NSAIDs, metformin if eGFR <30



Reference

- https://en.wikipedia.org/wiki/Contrast-induced_nephropathy
- Grossman and Biam book of cardiac catheterization

THANK YOU