

Level of Evidence (LOE)

A = Randomized prospective controlled trials (control and intervention group and enrolled prior to measured outcome)

B = Nonrandomized prospective trials

C = Retrospective analyses

E = Expert opinion, guideline, consensus statement, textbook summary, articles that summarize

M = Meta-analyses

Q = Economic analyses

1. Risk Factors

A. Pre existing renal insufficiency

(LOE E) Murphy, Barrett, Parfrey. Contrast Nephropathy: *J. Am. Soc. Nephrol.* 2000; 11: 177-182.

(LOE B) Davidson et al. Cardiovascular and renal toxicity of a Nonionic Radiographic Contrast agent after Cardiac cath. *Ann. Of Int. Med.* 1989;110:119-124.

(LOE E) Rudnick et al. Contrast media associated nephrotoxicity. *Semin Nephrol.* Jan 1997; 17(1): 15-26 Contrast Nephrotoxicity: Barrett. J, *J. Am. Soc. Nephrol.* 994; 5: 125-137.

B. Diabetes Mellitus

(LOE A) Aspelin et.al.. Nephrotoxic effects in high risk patients undergoing angiography: *N Eng J Med* 2003; 348: 491-9.

(LOE E) Murphy, Barrett, Parfrey. Contrast Nephropathy: *J. Am. Soc. Nephrol.* 2000; 11: 177-182.

(LOE E) Rudnick et al. Contrast media associated nephrotoxicity. *Semin Nephrol.* Jan 1997; 17(1): 15-26.

(LOE B) Parfrey et al. Contrast material induced renal failure in patients with DM, Renal Insufficiency or Both. *N Eng J Med* 1989; 320: 143-9.

(LOE A) Weisberg et al Risk of radiocontrast nephropathy.. *Kid. Int.* 45(1994) 259-65.

C. Dye load

(LOE E) Murphy, Barrett, Parfrey. Contrast Nephropathy: *J. Am. Soc. Nephrol.* 2000; 11: 177-182.

D. Ionic Vs non-ionic contrast media

(LOE B) Davidson et al. Cardiovascular and renal toxicity of a Nonionic Radiographic Contrast agent after Cardiac cath. *Ann. Of Int. Med.* 1989;110:119-124 .

(LOE A) Barrett et al. Contrast nephropathy in patients with impaired renal function: High versus low osmolar media. *Kidney Int, Vol.41 (1992);1274-1279.*

(LOE A) Schwab et al. Contrast Nephrotoxicity. *N ENG J Med* 1989; 320: 149-53.

Page 2- IV Contrast Nephropathy Prevention Reference

2. Types of IV Contrast

(LOE E) Metaanalysis of the relative nephrotoxicity of high- and low-osmolality iodinated contrast media. Barrett B.J., Carlisle E.J. Radiology. 188(1):171-8, 1993 Jul.

(LOE A) Nephrotoxicity of ionic and nonionic contrast media in 1196 patients: a randomized trial. The Iohexol Cooperative Study. Rudnick M R. Goldfarb S. Wexler L. Ludbrook P A. Murphy M J. Halpern E F. Hill J A. Winniford M. Cohen M B. VanFossen D B. Kidney International. 47(1):254-61, 1995 Jan.

(LOE: A) Nephrotoxic Effects in High-Risk Patients Undergoing Angiography. Peter Aspelin, Pierre Aubry, Knut Joachim Berg et al. N Engl J Med. Feb 2003; 348(6):491-99.

IV. Protocols for Prevention

(LOE A) Kay J, Chow WH et al. Acetylcysteine for prevention of acute deterioration of renal function following elective coronary angiography and intervention. JAMA 2003; 289 (5): 553-558.

(LOE= A) Archives of Internal Medicine, Feb 11, 2002

Saline more protective than saline / mannitol and saline and furosemide
0.9 %NS more protective than 0.45% NS