**Evidence Table I-13. Summary of the characteristics of studies comparing vasoactive agents with other interventions for the prevention of contrast-induced nephropathy and other outcomes**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author, year** | **Comparators** | **N** | **Population** | **Age, range of means**‡ | **Procedure / CM** | **Definition of CIN\*** | **Hydration and duration** | **Vasodilator dose and duration** | **Study limitations†** |
| Allaqaband, 2002[5](#_ENREF_5) | 0.45% saline vs.  0.45% saline + fenoldopam vs. 0.45% saline + NAC | 123 | SrCr ≥ 1.6 mg/dl | 70-71 | Cardiovascular interventions  LOCM | A2 | Saline 0.45%, 24 hours (12 hours before-12 hours after) | NAC 600 mg PO X2 12 h before-12 hours after (total 1200mg)  Fenoldopam 0.1mcg/kg/min infusion for 8 hours (4 hours before, 4 hours after CM) | M |
| Briguori, 2004[10](#_ENREF_10) | 0.45% saline + fenoldopam vs.  0.45% saline + NAC | 192 | SrCr >1.5 mg/dl or CrCl <60ml/min | 68-69 | Coronary and/or peripheral angiography IOCM | A2 | Saline 0.45% 24 hours (12 hours before-12 hours after) | NAC 1200 mg PO bid x 2 days (the day before and the day of the procedure) (total 4800mg)  Fenoldopam 0.1mcg/kg/min infusion starting 1 hour before CM and for 12 hours after. | M |
| Demir, 2008[16](#_ENREF_16) | Normal saline vs.  Normal saline + nifedipine vs  Normal saline + NAC vs Normal saline + misoprostol vs. Normal saline + theophylline | 97 | Stable renal disease  SrCr >1.2mg/dl | 43-77 | Computed tomography  LOCM | A3 | Saline 0.9% 2000ml | Nifedipine 30 mg/day for 5 days starting 3 days before the procedure | H |
| Gunebakmaz, 2012[21](#_ENREF_21) | Normal saline vs.  Normal saline+ nevibolol vs.  Normal saline + NAC | 120 | SrCr ≥ 1.2mg/dl | 53-66 | Cardiovascular interventions  IOCM | A3 | Saline 0.9% 1ml/kg/h infusion for 82h (6 hours before, 12 hours after) | Nevibolol 5mg day for 4 days starting 2 days before procedure | H |
| Li, 2011[39](#_ENREF_39) | Normal saline vs.  Normal saline+ benazepril | 114 | Mild or moderate CKD  CrCl ≥60ml/min ≤89 ml/min | 52-72 | Coronary interventions  LOCM | A3 | Saline 0.9% 1ml/kg/h infusion for 12h (6 hours before, 6 hours after) | Benazepril 10mg/day, 3 days, Prior to CM administration | H |

**Evidence Table I-13. Summary of the characteristics of studies comparing vasoactive agents with other interventions for the prevention of contrast-induced nephropathy and other outcomes (continued)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author, year** | **Comparators** | **N** | **Population** | **Age, range of means**‡ | **Procedure / CM** | **Definition of CIN\*** | **Hydration and duration** | **Vasodilator dose and duration** | **Study limitations†** |
| Li, 2014 [40](#_ENREF_40) | IV Normal Saline vs.  IV Normal Saline + IV Prostaglandin E1 | 163 | CIN Risk Score >11 | 65 | PCI  LOCM | A3 | 0.9% saline IV for routine hydration | 20 ng/kg/min IV prostaglandin E1, beginning1 hour prior to CM administration for 6 hours | H |
| Liu, 2013[41](#_ENREF_41) | Statin vs. Statin + Alprostadil | 156 | Mild to moderat kidney disease (eGFR 60-89 ml/min/1.73 m2) | 65 | Coronary angiography or PCI  IOCM | A3 | IV Normal saline, 1-1.5 ml/kg/h, 3-12 h pre and 6-24 hours post procedure | 40 mg/day statin (see Arm1) + 20 mcg/day IV alprostadil, 1 day prior and 6 days post procedure | H |
| Ng, 2006[50](#_ENREF_50) | Normal saline + fenoldopam vs.  Normal saline + NAC | 95 | SrCr >1.5 mg/dl or CrCl <60ml/min | 57-80 | Coronary angiography  IOCM, LOCM | A3 | Saline 0.9% 1ml/kg/ starting 1-2 hours before continuing 6-12 hours after | NAC 600 mg PO bid x 2 days (the day before and the day of the procedure) (total 2400mg)  Fenoldopam 0.1mcg/kg/min infusion for 8 hours (2 hours before, 6 hours after CM) | M |
| Oguzhan, 2013[51](#_ENREF_51) | Normal saline vs.  Normal saline + amlodipin-valsartan | 90 | SrCr <2.1 mg/dl | 62-66 | Coronary arteriography and ventriculography LOCM | A3 | Saline 0.9% 24 hours (12 hours before, 12 hours after) | Amlodipine-valsartan 5/160mg x3 (24h before the procedure-the day of the procedure and 24 hours after) | H |
| Talati, 2012[62](#_ENREF_62) | Intra renal fenoldopam +hydration (not specified) vs.  matched control (NAC) + hydration (not specified) | 52 | Coronary procedurees | 69 | Cardiovascular interventions  IOCM | A3 | No mention of hydration protocol | NAC 1200 mg 4 doses PO (2 before, 2 after) (total 4800mg)  Fenoldopam 0.1-0.4mcg/kg/min intrarenal | H |
| Wolak, 2013[65](#_ENREF_65) | Continued ACE/ARB vs. Short delay ACE/ARB vs Long delay ACE/ARB | 94 | General | 65 | Coronary arteriography  CM not reported | NR | Saline solution not specified, for 12 hours prior and after image study | Dose determined by physician | H |

CIN=contrast induced nephropathy; CM=contrast media; IOCM-ios-osmolar contrast media; Cr=creatinine; LOCM=low-osmolar contrast media; NA=not applicable; NAC=n-acetylcysteine; PO=per os; SrCr=serum creatinine

\* CIN definitions: rise in serum creatinine relative to baseline: ≥25% (A1); ≥0.5 mg/dl (A2); ≥25% or ≥0.5 mg/dl (A3); ≥50% (A4). B: >25% reduction in creatinine clearance.

† Study limitations: L=low risk of bias; M=moderate risk of bias; H=high risk of bias

‡ Some studies only reported mean age per arm, not one mean for whole population. This column shows range of the means across all arms.