PROPHYLAXIS AGAINST CONTRAST NEPHROPATHY

Contrast Agents and Acute Renal Failure

Many studies looking at strategies to minimize and prevent contrast-induced nephropathy - optimal strategy have not been defined. Basic and common sense approach should include

a) identifying at risk patients (ie those with who have pre-existing chronic renal disease or acute renal failure/impairment or rapidly deteriorating renal function)
b) performing contrast studies only if clinically indicated and expected to confer significant benefit to patient. Consider alternative methods of investigation if possible
c) ensure adequate fluid hydration
d) avoiding other concurrent nephrotoxic agents eg aminoglycosides if possible.

2 additional strategies used in this ICU include:-

N-acetylcysteine
- Recent studies shows prehydration and N-acetylcysteine may lower the incidence contrast induced nephropathy. Dose is oral 600 mg BD, 2 doses pre- and 2 doses post-contrast.
- We have also been giving IV instead of oral N-acetylcysteine for patients who are under total bowel rest, or if we run out of time. Dose IV is still arbitrary - refer to on-call consultant
- A common regimen used in this ICU is to give 1.2 g N-acetylcysteine diluted in 250 mls of 5% dextrose and infused intravenously over 1 hour before the contrast study, then consider repeating one more dose after the study

Sodium Bicarbonate (PWH protocol)
- Add 80mls of 8.4% sodium bicarbonate into one 500 mls bottle/bag of Dextrose 5% (to achieve a sodium concentration of approximately 138 mmol/L, total volume of 580mls)
- Infuse at a rate of 3ml/kg/hr one hour before contrast study, followed by 1 ml/kg/hr for the next 6 hours during and after the procedure

We leave the choice of using N-acetylcysteine AND/OR sodium bicarbonate to the clinician.
If you choose to use both strategies simultaneously, then the resultant volume of infused fluid would be a protective strategy in itself against contrast nephropathy. However, the clinician has to consider the potential adverse effects of volume overloading in susceptible patients.