

Acidosis

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GUIDELINES

There are no human trials with clinically relevant outcomes that have assessed the impact of acidosis correction on renal failure progression.

SUGGESTIONS FOR CLINICAL CARE

(Suggestions are based on Level III and IV sources)

- **There are no studies of the effect of alkali therapy on the progression of renal failure in humans. No recommendations can therefore be made regarding the use of alkali treatment specifically for the purposes of renoprotection.**

Background

Metabolic acidosis is a common accompaniment of chronic kidney disease (CKD) and has been identified as a risk factor for the progression of renal insufficiency (Klahr and Morrisey 2003). The objective of this guideline was to assess the available clinical evidence pertaining to the impact of correction of metabolic acidosis on renal function decline.

Search strategy

Databases searched: Medline (1999 to November Week 2, 2003). MeSH terms for kidney disease were combined with MeSH terms and text words for alkali therapy and bicarbonates. The results were then combined with the Cochrane highly sensitive search strategy for randomised controlled trials and MeSH terms and text words for identifying meta-analyses and systematic reviews. The Cochrane Renal Group Specialised Register of Randomised Controlled Trials was also searched for relevant trials not indexed by Medline.

Date of search: 16 December 2003.

What is the evidence?

There are no randomised controlled trials (RCTs).

Although a renal protective effect of alkali therapy is unproven in humans, a brief (26 h) study of oral sodium bicarbonate in 11 patients with mild-to-moderate renal insufficiency (Rustom et al 1998) found that urinary excretion of N-acetyl-β-D-glucosaminidase (a marker of tubular injury) was decreased, although proteinuria and ⁵¹Cr-EDTA clearance remained unchanged. No longer term studies assessing the influence of alkali therapy on renal failure progression in humans are available.

Summary of the evidence

There are no human trials with clinically relevant outcomes that have assessed the impact of acidosis correction on renal failure progression.

What do the other guidelines say?

Kidney Disease Outcomes Quality Initiative: No recommendation.

Canadian Society of Nephrology: No recommendation.

UK Renal Association: No recommendation.

European Best Practice Guidelines: No recommendation.

International Guidelines: No recommendation.

Implementation and audit

No recommendation

Suggestions for future research

Considering the general benefits of acidosis correction (prevention of muscle breakdown and osteopenia), a study of the effects of alkali therapy on renal function per se would not seem warranted.

References

Klahr S, Morrissey J: Progression of chronic renal disease. *Am J Kidney Dis* 2003; 41(3 Suppl 1): S3–S7.

Rustom R, Grime JS, Costigan M et al. Oral sodium bicarbonate reduces proximal renal tubular peptide catabolism, ammoniogenesis, and tubular damage in renal patients. *Ren Fail* 1998; 20: 371–382.