

## **Water/ fluid in pre-dialysis patients**

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### **GUIDELINES**

**No recommendations possible based on Level I or II evidence**

### **SUGGESTIONS FOR CLINICAL CARE**

(Suggestions are based on Level III and IV evidence)

- **Fluid intake should be adjusted to the clinical state of the patient, taking into account the degree of reduced glomerular filtration rate (GFR), oedema, and hypertension management. (Opinion)**

#### **Points for increased fluid intake:**

**High fluid intake constitutes part of management of renal conditions such as nephrolithiasis and urinary tract infections (Pearle 2001).**

**Fluid depletion, from limiting fluid intake or the over-zealous use of diuretic therapy, can aggravate pre-existing chronic kidney disease (CKD). Patients who need to eliminate their daily osmotic load, or those with a salt-losing nephropathy, may have a high obligatory fluid output, and fluid restriction may be harmful.**

#### **Points for reduced fluid intake:**

**Once kidney disease is well established, the adverse effects of a high fluid intake often outweigh the benefits. Excess load on the myocardium, reduced control of hypertension, and the risk of pulmonary oedema are the most common.**

**Sodium and water retention results in oedematous states, and symptoms of fluid overload – especially reduced exercise tolerance and paroxysmal nocturnal dyspnoea – reduce quality of life.**

**Once fluid management of the patient requires diuretics, a liberal fluid intake should be curbed. Control of hypertension in established CKD, includes limited sodium and water intake and the use of diuretics.**

**Through education, patients with CKD and oedema should follow a reduced fluid intake regimen, in combination with a reduced sodium intake. Fluid and salt intake are often inseparable. Addressing the patient's salt intake often has a secondary benefit in reduced thirst, water demand, and improved oedema and hypertension control.**

**Hyperglycaemia exacerbates thirst and good glycaemic control in diabetic patients can reduce their thirst drive.**

## **Background**

The kidney is the body's homeostatic organ for water balance. Progressive renal failure results in progressive reduced water clearance. Unless fluid intake is modified, fluid overload with hypertension and subsequent cardiac, cerebrovascular, renal and respiratory complications may develop (Thylen et al 1991).

Fluid is central to our social interaction. Marketing has been very successful at encouraging community water consumption "for health" in general and kidneys, specifically. While this is true in many circumstances, the presence of reduced GFR, and therefore reduced water clearance capacity, requires a reduction in water intake. This contravenes the powerful marketing advice the patient has readily and frequently been exposed to.

Assessing the recommended daily fluid intake is the objective of this guideline.

## **Search strategy**

**Databases searched:** MeSH terms and text words for kidney disease were combined with MeSH terms and text words for drinking then combined with the Cochrane highly sensitive search strategy for randomised controlled trials and search filters for identifying prognosis and aetiology studies. The search was carried out in Medline (1996 – November Week 2 2003). The Cochrane Renal Group Trials Register was also searched for trials not indexed in Medline.

**Date of searches:** 27 November 2003.

## **What is the evidence?**

No randomised controlled trials (RCTs) are available which address this issue.

## **Summary of the evidence**

There are no RCTs on this topic.

## **What do the other guidelines say?**

**Kidney Disease Outcomes Quality Initiative:**  
No recommendation.

**British Renal Association:**  
No recommendation.

**Canadian Society of Nephrology:**  
No recommendation.

**European Dialysis & Transplant Nurses Association/ European Renal Care Association:**

The patient will be advised on a reduced fluid intake if oedematous or otherwise medically indicated.

**Implementation and audit**

Regular assessment at clinic visit of fluid status, dietary reassessment and body weight recording, with consolidation of education are recommended to help patients follow the water restriction advice.

**Suggestions for future research**

No recommendations.

## **References**

Pearle MS. Prevention of nephrolithiasis. *Curr Opin Nephrol Hypertens* 2001; 10: 203–09.

Thylen P, Ericsson F, Odar-Cederlof I et al. Hypertension profiling by total body water (TBW) determinations in patients on chronic hemodialysis. *Int J Artif Organs* 1991; 14: 18–22.