

# Cochrane nursing care corner: Low protein diets for chronic kidney disease in non diabetic adults

Cheng Yun

Yun, C. (2010). Cochrane Nursing Care Corner: Low Protein Diets for Chronic Kidney Disease in Non Diabetic Adults. *Ren Soc Aust J*, 6(1), 25



Submitted Feb 2010 Accepted March 2010

## Cochrane Database of Systematic Reviews Reference:

Fouque D, Laville M. Low protein diets for chronic kidney disease in non diabetic adults. *Cochrane Database of Systematic Reviews* 2009, Issue 3. Art. No.: CD001892. DOI: 10.1002/14651858.CD001892.pub3.

## Review Question:

What is the effect of low protein diets in preventing the natural progression of chronic kidney disease towards end-stage kidney disease and delaying the need for starting maintenance dialysis?

## Relevance for Clinical Practice:

Kidney disease can lead to kidney failure; some health care professionals recommend to reduce protein intake to slow down the development of non-specific glomerular or interstitial lesions, and hence the progression of patients towards end-stage kidney disease. It is still unclear if patients should limit their protein intake and if so, to what extent should nutritional behaviour be changed during chronic kidney disease.

## Characteristics of the Evidence:

The review included 10 studies in which adult participants (suffering from moderate to severe kidney failure) had

been randomly allocated to receive either their usual intake of protein or were asked to limit their protein intake for at least 12 months. Standard protein intake was defined as 0.8 g/kg/d, moderate protein intake as 0.6 g/kg/d and severe protein restriction as 0.3 g/kg/d. In total there were 2000 participants with all studies indicating that randomisation had taken place however some studies did not describe the process of randomisation. Renal death was the outcome of interest and for the purpose of this review it was classified as death during follow-up (due to any cause), need to start haemodialysis or peritoneal dialysis during follow-up or kidney transplant during the study.

Nine of the ten studies demonstrated a trend in favour of a restricted protein intake diet. The result showed no heterogeneity between studies. A meta-analysis of restricted protein intake versus free or higher protein was conducted, with the overall effect found to be highly significant, with 113 renal deaths observed with restricted protein intake compared with 168 events in the unrestricted protein intake. ( $P = 0.0002$ ).

The subanalysis measuring a more liberal intake (0.6 g/kg/d versus higher protein intake, three studies) showed little effect on renal death whereas for the analysis of more reduced protein intakes (0.3 to 0.6

## Key Words

kidney disease, systematic review, protein, diet, chronic disease

g/kg/d versus higher/free protein intake, 7 studies), the difference in renal deaths was strongly significant ( $P = 0.0009$ )

## Implications for Clinical Practice:

The evidence suggests that a nutritional intervention should be proposed to patients with moderate chronic renal failure, that includes a reduction in protein intake. The optimal level of protein intake cannot be defined from the results of this review but the result from the meta-analysis indicates 0.3~0.6 g/kg/d is significantly more beneficial than high protein diets.

## Implications for Research:

- Further nutritional studies may be necessary to characterise the optimal level of protein restriction and duration of intervention.
- There is need to test a potential additive effect of a low protein diet in combination with angiotensin-converting enzyme inhibitors, angiotensin II receptor antagonists or other antiproteinuric medications.

**Author Details:** Cheng Yun, RN MSN is Director of Nursing at Huadong Hospital, Fudan University Shanghai and is a member for the Cochrane Nursing Care Network

**Correspondence to:** Cheng Yun, Huadong Hospital Shanghai. yun91@hotmail.com