

Lipids/fats 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)

- **All persons with chronic kidney disease (CKD) (pre-dialysis) should have regular checks of their serum cholesterol and triglycerides, and the blood cholesterol target should be similar to guidelines for the non-renal disease population. (Opinion)**
- **Cholesterol-lowering medication therapy should be commenced in patients with CKD (pre-dialysis) who have failed to attain a serum cholesterol below 4.5 mmol/L with dietary manipulation. The HMG CoA reductase inhibitors (statins) are the choice for low high density lipoprotein (HDL) and/or elevated low density lipoprotein (LDL). (Opinion)**

The implementation of local guidelines (when available) for the vascular health of the non-renal failure population is recommended for the pre-dialysis renal patient. Care must be taken with the choice of therapies for reducing blood lipid levels.

In non-diabetic CKD patients, the hypertriglyceridaemia can be reduced by both increasing the dietary polyunsaturated: saturated fat ratio and by reducing the carbohydrate content of the diet. Dietary modification under the supervision of a suitably qualified dietician may be helpful for managing the hypertriglyceridaemia. Patients with other coronary risk factors (i.e. smoking, hypertension, obesity, and lack of exercise) should be encouraged to modify their behaviour, in conjunction with adopting the modified lipid diet.

If dietary intervention is inadequate, a fibrate to lower blood cholesterol levels should be considered. The dual benefit of triglyceride lowering and HDL elevation is achieved with this therapy. However, fibrates can lead to deterioration in the glomerular filtration rate (GFR). Regular monitoring of the serum creatinine, at least 3-monthly, during the fibrate therapy should be undertaken. The fibrate should be ceased if any persisting unexpected rise in the serum creatinine of more than 20% occurs. Consideration of further investigation before reintroduction of the fibrate should be given if the creatinine does not improve within 3 months of the patient being off the fibrate

medication. The reduction in the GFR is usually reversible when this policy is practised.

Background

Vascular disease is the leading cause of mortality in the CKD population. Any reduction in the risk of coronary and other vascular diseases seems good clinical practice (e.g. lipid lowering). Some causes of renal failure (e.g. nephrotic syndrome) are associated with hypercholesterolaemic states or the therapies involved in the management of renal disease (e.g. corticosteroids) may affect normal lipid metabolism. Blood cholesterol levels are frequently elevated in CKD patients. Dietetic interventions can help to maintain and improve nutritional status in predialysis patients (Cliffe et al 2001).

Often diets high in fat content are required to prevent malnutrition. A trade-off between benefits of low-calorie/ low-fat diet and inadequate calorie intake (with ensuing malnutrition) may need to occur.

This guideline aims to assess whether there are any differences in mortality or morbidity associated with varying dietary intake of lipids, saturated and unsaturated fats.

Search strategy

Databases searched: MeSH terms and text words for kidney disease were combined with MeSH terms and text words for dietary fats 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.

For patients with hypercholesterolaemia, a statin can effectively and safely lower the blood cholesterol concentration to or near acceptable levels. Both the LDL levels will decrease and the HDL levels increase, thus reducing the LDL:HDL ratio, with subsequent benefit to cardiovascular risk. Studies in subjects without kidney disease suggest that statin therapy can improve survival when given as primary therapy to patients with normal cholesterol concentrations (Downs et al 1998). This has not been studied in CKD patients.

Both fibrates and statins are associated with myopathy. When used together, the risk is theoretically greater. Advice to the patient to report any muscle symptoms is

recommended, and a creatine kinase (CK) level should be checked. If elevated, both agents should be ceased. Reintroduction of one agent at a later stage is recommended, when CK has returned to normal.

The plasma cholesterol concentration is reduced in malnourished patients.

A review has suggested that lipid lowering may have a beneficial effect on the progression of renal function in diabetic nephropathy (Nosadini & Tonolo 2003).

Although there is a wealth of information about cholesterol-lowering diets benefiting general health and lowering cardiovascular disease morbidity and mortality, there is no such evidence in the pre-dialysis CKD patient. Dietary control combined with reduced cholesterol or fat intake may reduce the cholesterol by 10%–20% in non-CKD patients. It is assumed that similar benefits will be seen in pre-dialysis CKD patients.

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: No recommendation.

Implementation and audit

Regular monitoring of the blood lipids should occur. The suggested frequency of monitoring is every 3 months.

Suggestions for future research

The Study of Heart And Renal Protection (SHARP) study is enrolling patients. This multinational study is looking at the effect/s of intervention on lipid management in the pre-dialysis CKD patient and will help address this important issue. An informative and clinical practical outcome of this long awaited trial is anticipated.

References

Cliffe M, Bloodworth LL, Jibani MM. Can malnutrition in predialysis patients be prevented by dietetic intervention? *J Ren Nutr* 2001; 11: 161–65.

Downs JR, Clearfield M, Weis S et al. Primary prevention of acute coronary events with lovastatin in men and women with average cholesterol levels: results of AFCAPS/TexCAPS. Air Force/Texas Coronary Atherosclerosis Prevention Study. *JAMA* 1998; 279: 1615–22.

Nosadini R, Tonolo G. Blood glucose and lipid control as risk factors in the progression of renal damage in type 2 diabetes. *J Nephrol* 2003; (16 Suppl 7): S42–S47.