

Calwood Nutritionals, Inc.

5331 Landing Road

Elkridge, MD 21075

800.479.9942

www.calwoodnutritionals.com

Interpreting Research for the Kidney Patient - June, 2006

¹ Raj DS, Oladipo A, Lim VS. Amino Acid and protein kinetics in renal failure: an integrated approach. *Semin Nephrol.* 2006 Mar;26(2):158-66.

² Paddon-Jones D, Sheffield-Moore M, Urban RJ, Sanford AP, Aarsland A, Wolfe RR, Ferrando AA. Essential amino acid and carbohydrate supplementation ameliorates muscle protein loss in humans during 28 days bedrest. *J Clin Endocrinol Metab.* 2004 Sep;89(9):4351-8.

³ Tipton KD, Ferrando AA, Phillips SM, Doyle D Jr, Wolfe RR. Postexercise net protein synthesis in human muscle from orally administered amino acids. *Am J Physiol.* 1999 Apr;276(4 Pt 1):E628-34.

⁴ Hiroshige K, Sonta T, Suda T, Kanegae K, Ohtani A. Oral supplementation of branched-chain amino acid improves nutritional status in elderly patients on chronic haemodialysis. *Nephrol Dial Transplant.* 2001 Sep;16(9):1856-62.

⁵ Spiegel DM, Breyer JA. Serum albumin: a predictor of long-term outcome in peritoneal dialysis patients. *Am J Kidney Dis.* 1994 Feb;23(2):283-5.

⁶ Vendrely B, Chauveau P, Barthe N, El Haggan W, Castaing F, de Precigout V, Combe C, Aparicio M. Nutrition in hemodialysis patients previously on a supplemented very low protein diet. *Kidney Int.* 2003 Apr;63(4):1491-8.

⁷ Aparicio M, Chauveau P, De Precigout V, Bouchet JL, Lasseur C, Combe C. Nutrition and outcome on renal replacement therapy of patients with chronic renal failure treated by a supplemented very low protein diet. *J Am Soc Nephrol.* 2000 Apr;11(4):708-16.

A recent paper started with the words, “Even apparently healthy patients on dialysis have significant loss of lean body mass.”¹ Although this should give every physician treating a patient on dialysis a reason to research nutrition, virtually none of these physicians give an appropriate supplement for their patients. Protein supplements often make patients nauseous and are not used well by the body. This is the reason up to 80% of all dialysis patients have protein energy malnutrition. Another reason physicians fail to prescribe nutritional supplements is that Medicare does not reimburse medical foods. In looking at the medical literature outside that for kidney disease, data is found that will greatly improve this situation.

Wolfe’s group has shown that a supplement of essential amino acids (EAA) stimulates muscle synthesis and can prevent loss of lean muscle mass, even in patients on complete bed rest for 28 days.² As opposed to protein or amino acid supplements containing the non-essential amino acids or protein, EAA **do not** cause muscle breakdown or increase blood urea nitrogen (BUN).³ Your physician might say that should be tested in large trials for kidney patients, however, in the absence of such large trials, small ones will have to point the way. Supplementation with amino acids of dialysis patients having a serum albumin below 3.5 **showed a dramatic improvement** in their serum albumin levels over a 6 month period.⁴ As we reported in our February Newsletter, a low serum albumin level is closely associated with the likelihood of death. A level below 3.5 is associated with a 313% increase in death rate on dialysis. Your level should be above 4.0. Physicians have known this at least since 1994 when it was reported, “We conclude that the stable outpatient serum albumin concentration in peritoneal dialysis patients is a powerful predictor of mortality as well as of short-term morbidity.”⁵

It doesn’t take a great leap of imagination to realize that Dr. Wolfe’s research showing you can prevent loss of lean muscle mass by taking amino acids combined with the data showing that amino acids improve serum albumin levels to realize that you can improve your nutritional status, either on or off dialysis, by taking the essential amino acids.

Although some physicians continue to say that the nutritional safety of low protein diets in patients with kidney disease is controversial, Aparicio and colleagues continue studies which show that treatment with a very low protein diet supplemented with EAA prior to starting dialysis is nutritionally safe.⁶ They found a much lower death rate (2.4% after 1 yr) for patients who had been on the diet with EAA and found similar results in transplanted patients. The normal rate for the first year of dialysis is 24%.

In case you wonder what the normal response to taking amino acids by a dialysis patient is, it’s an increase in energy, weight gain and an increase in muscle tone. Exercise is something that benefits the dialysis patient and the best way to fight fatigue is through taking an EAA supplement. Nutramine™, Nutramine T™ and Nutrasentials™ all contain the amino acids you need whether you are on dialysis or trying to avoid dialysis.