

an Apple a Day



*Nutrition plays a big part
in a CKD patient's
dialysis access.*

An apple a day for chronic kidney disease (CKD) patients could have more benefit than Benjamin Franklin first suspected when he wrote the saying in the Poor Richard's Almanac.

Good nutrition is essential to a CKD patient's overall health and chomping on an apple (or other healthy food) can make all the difference when preparing for a fistula and after its placement.

Early Placement

Early fistula placement can have a major impact on nutritional outcomes in the early stages of dialysis for several reasons, as malnutrition is a major factor contributing to morbidity and mortality among CKD patients.

The proportion of CKD patients that have protein energy malnutrition is substantial. Several studies have documented that 20 to 60 percent of patients on hemodialysis are malnourished, especially in the

first 90 days of treatment. Malnourished patients suffering from a lack of appetite, a manifestation of uremia, initiate dialysis with a higher risk of hospitalization and mortality.

Dialysis Adequacy

Patients with mature fistulas at the initiation of dialysis will achieve better Kt/V results. According to the National Kidney Foundation's Kidney Dialysis Outcomes Quality Initiative (KDOQI) Guidelines, Kt/V is a number used to quantify hemodialysis and peritoneal dialysis treatment adequacy. In medical equations, K is dialyzer clearance of urea, t is dialysis time and V is the patient's total body water.

Normalized protein catabolic rate (nPCR) is a parameter that has been widely used as a marker of protein intake. Research has shown that protein catabolic rates increase linearly with the Kt/V indicating

patients are more adequately nourished when they are well dialyzed.

The improvement in nutritional status is likely indicative of an increase in protein intake as a result of an improved appetite because the patient's blood is more thoroughly cleaned.

Counseling the patient to increase dietary protein intake will be ineffective if the patient is receiving poor dialysis.

It is imperative that a patient gets a good start with a fistula to achieve dialysis adequacy, but also to help fight infection and inflammation.

Inflammation suppresses appetite, increases muscle catabolism, and can result in progressive cachexia. Infection and nutritional status have been shown to be independent predictors of hypoalbuminemia in dialysis patients.

Infection Rate

Infection creates a downward spiraling cycle that affects the nutritional status of the kidney patient. The increased risk of infection with catheters will lower albumin levels in CKD patients and places them at risk for malnutrition.

In turn, low albumin levels make it difficult for patients to fight infection.

For patients initiating dialysis, a mature fistula affects the infection/nutrition cycle in a positive way, due to a lower rate of infection and improved appetite through adequate dialysis.

Serum albumin levels are used extensively to assess the nutritional status of CKD patients. One of the most powerful predictors of survival in the first 90 days of dialysis treatment is an albumin level of less than 30 g/l.

This makes hypoalbuminemia

highly predictive of future mortality risk, both at initiation and throughout the course of maintenance dialysis.

Best Practices

Getting patients involved in the maintenance of their health at the earliest stage possible is very important. Patients should be encouraged to attend annual Kidney Early Evaluation Program (KEEP) screenings, CKD options classes provided by most dialysis companies and health fairs.

In order for patients to achieve early fistula placement, early referral is essential. Primary care physicians should refer their patients to a nephrologist early upon diagnosis. This will allow for vein mapping and identifying patients who are candidates for fistula placement.

Patients are also recommended to receive nutritional education by a renal dietician. Dieticians can help manage comorbidities contributing to kidney failure such as diabetes and hypertension and ensure appropriate intake of calories and protein to maintain a healthy weight and prevent malnutrition.

Dieticians can also provide education on sources and optimal intake of antioxidants to decrease inflammation, as well as on changing sodium, potassium, phosphorus and fluid needs as the patient progresses through the stages of CKD.



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