



Chronic Renal Failure 慢性腎衰竭(英文)

Definition

Renal failure is the sequelae of kidney injury which leads to reduced renal function, resulting in fluid, electrolytes dysregulation and body waste, toxin accumulation. When renal function can not be recovered, it is called chronic renal failure (CRF) or chronic kidney disease (CKD). When the kidney dysfunction is severe, it can lead to uremic syndrome, such as nausea, vomiting or conscious disturbance, worsening body edema, high serum potassium level with associated potentially fatal irregular heart rhythm. These conditions are thus called advanced kidney failure with uremic syndrome.

Clinical Symptoms of uremia

Common symptoms of advanced renal failure include fatigue, nausea, vomiting, poor appetite, hiccup, generalized body itchiness, edema, shortness of breath, pale face and bruises.

Treatment

It is very important to identify the causes of renal failure and avoid further worsening of kidney function. When intractable uremic symptoms developed, dialysis is the main modality of treatment.

A. Diet control of patients with renal failure:

1. Protein: Chronic renal failure patients without receiving dialysis treatment should be on protein restricted diet. Because the nitrogenous waste produced by protein catabolism can't be excreted by an impaired kidney. Accumulation of these waste products can result in uremic symptoms and cause further harm to the kidney. Generally, the protein intake (including

- meat, eggs, milk and beans) should be restricted to 2/3 of normal amount.
2. Sodium/salt: Salt intake should be restricted in chronic renal failure patients. Salt is mainly eliminated by kidney. Excessive salt intake can cause salt retention. It can result in hypertension, pulmonary and generalized edema, heart failure and ascites.
 3. Potassium: Potassium is eliminated by the kidney and should be restricted in chronic renal failure patients. Retention of potassium will lead to hyperkalemia. Severe hyperkalemia may lead to arrhythmia and sudden death. Potassium is found particularly in leafy vegetables, most fruits (esp. orange, banana, and kiwi), fruit juice, and in potatoes, especially if they are fried or baked. Low sodium soy sauce also contains high potassium and should be avoided in renal failure patients. Never eat star fruit because it's neurotoxic to renal failure patients.
 4. Phosphate: Phosphate should be restricted. Phosphate retention will lead to itchy skin and bone disorder. Increase serum phosphate is associated with increased protein intake, especially with milk and cheese. Other sources are junk foods which have high phosphates content.
 5. Fluid: Most people drink 1-2 liters a day and don't need to reduce fluid intake. However, fluid intake is restricted in patients with decreased urine output.
 6. Energy and nutrition: Insufficient caloric intake can lead to increased muscle breakdown for provision of the total body energy demand. Worsening muscle loss can result in progressive weakness and debilitation. Once this happens, it can take months to recover strength. Appetite is decreased in many patients with kidney failure. Malnutrition can be a serious problem in severe kidney disease and in some dialysis patients. This condition is even worse for patient with other systemic illness. Consultation with nutritionist is strongly advised.

B. Renal replacement therapy:

When the kidney's function is inadequate in removing waste and water from the body and the patient has intractable fluid overload, hyperkalemia, uremic syndrome that are non responsive to medical therapy, renal replacement therapy is indicated. It can be done by either peritoneal dialysis or hemodialysis or renal transplantation.

In hemodialysis, the waste and water are removed via an artificial kidney. Patient should undergo creation of vascular access and then undergo hemodialysis via dialysis machine.

In peritoneal dialysis, after the patient underwent implantation of indwelling abdominal catheter, dialysis solution can then be introduced into the abdominal cavity which removes waste and water from the body.

Renal transplantation is the best option and most cost effective mode of renal replacement therapy for most cases of end stage renal disease patients. When a donor kidney is available, and after proper pairing and matching with the recipient, the patient can receive transplantation of the new kidney to replaced the failed kidney organ.

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