

Editorial

Rehabilitation in Chronic Kidney Disease (CKD) – Need of the Hour

Chronic kidney disease is a fast growing health concern in our society as it is entwined with increasing lifestyle related morbidities such as diabetes, hypertension, etc. Living conditions of a patient diagnosed with chronic kidney disease starts degrading after the diagnosis and it falls further after commencement of dialysis due to various physical and social reasons. The overall prevalence and the untapped potential of a CKD patient to lead a normal life warrants adequate rehabilitative measures to bring them back to their normal life. Rehabilitation in ESRD patients should be an individualized comprehensive approach aimed at optimal social integration of the patient by increasing his functional potential along with reduction in the cardiovascular comorbidities. An evidence based integrated programme can considerably improve the quality of life; reduce the economic burden and mortality rate. Rehabilitation efforts should start with proper patient counselling giving special attention to the psychological factors that ensures patient adherence and compliance to the program. Functional independence is attempted by increasing the physical capability of the patient, the limiting factors being cardiac morbidity and protein-energy wasting (PEW). Protein energy wasting is a specific form of muscle wasting in renal patients and is characterized by increased muscle protein catabolism relative to protein synthesis. Several factors contribute to this condition such as uremia, chronic inflammation, metabolic acidosis, oxidative stress, malnutrition, inactivity, androgen deficiency, insulin resistance, hemodialysis procedures, and concurrent illnesses are all related to muscle wasting. Hence adequate protein and caloric intake plays a pivotal role. It has been observed that a well-planned exercise program, which takes into consideration the cardiac status of the patient (using denominators such as heart rate reserve (HRR), rate of perceived exertion (RPE) etc.)¹ can prevent muscle wasting and increase functional capabilities in addition to cardiac conditioning and reduction in cardiac morbidity.

As per Tae-Du Jung et al., exercise or regular physical activities should be mandatory, not optional, in patients with ESRD.¹ Many studies have reported that aerobic exercise improves anemia, hyperlipidemia, chronic inflammation, blood pressure, insulin resistance, arterial stiffness, and removal of urea or phosphate.^{2,3} A study by Diesel W et al. showed that isokinetic muscle strength was an important determinant of VO₂peak in patients on dialysis. Therefore, an intradialytic exercise program including resistance exercise could be beneficial in ESRD patients on hemodialysis.⁴ Exercise regimen usually consists of daily stretching using proprioceptive neuromuscular facilitation, intra dialysis endurance training aerobic exercises and daily strength training exercise regime. Storer et al reported that 9 weeks of leg-cycling during hemodialysis improves not only cardiopulmonary fitness and endurance but also muscle strength, power, fatigability, and physical function.⁵ A Randomized Controlled Trial on The Effect of Intradialytic Aerobic Exercise on Dialysis Efficacy in Hemodialysis Patients concluded that a simplified aerobic exercise program has increased the efficacy of dialysis and may be considered as a safe, complementary and effective modality for hemodialysis patients.⁶

As suggested by Kirsten L. Johansen et al., if there are no cardiovascular and musculoskeletal contraindications then patients should be encouraged to begin a walking program, starting with 10 to 30 min/d, 3d/wk at a moderate difficulty level as tolerated. Patients should then be encouraged to increase their walking time to at least 30 min on 3 d/wk or more, keeping the intensity at a moderate level.⁷ For those who do not qualify for cardiac rehabilitation, the recommendations for older adults are: "To promote and maintain health, older adults need moderate-intensity aerobic physical activity for a minimum of 30 minutes on five days each week or vigorous intensity aerobic activity for a minimum of 20 minutes on three days each week. These recommendations also include muscle strengthening, flexibility and balance exercise which is tailored to an individual's relative intensity and progressed gradually."⁷

Although there is no doubt that larger studies of the effects of exercise interventions on survival and quality of life are needed, there is now more compelling evidence to support the benefits of exercise in the dialysis population than there is to support several other commonly used therapies, such as "statins"⁸

The above evidences clearly suggest the effectiveness of rehabilitation in improving the quality of life of renal patients. Hence this paucity of data should be taken as a wakeup call to the Physiatry community of our country to step up our research work in this field and to convert this result to our daily practice.

REFERENCES

1. Tae-Du Jung, Sun-Hee Park: Intradialytic Exercise Programs for Hemodialysis patients. *Chonnam Med J*. 2011 Aug; 47(2): 61–65.
2. Miller BW, Cress CL, Johnson ME, Nichols DH, Schnitzler MA. Exercise during hemodialysis decreases the use of antihypertensive medications. *Am J Kidney Dis*. 2002; 39:828–833.
3. Painter P, Carlson L, Carey S, Paul SM, Myll J. Physical functioning and health-related quality-of-life changes with exercise training in hemodialysis patients. *Am J Kidney Dis*. 2000; 35:482–492.
4. Diesel W, Noakes TD, Swanepoel C, Lambert M. Isokinetic muscle strength predicts maximum exercise tolerance in renal patients on chronic hemodialysis. *Am J Kidney Dis*. 1990;16:109–114.
5. Storer TW, Casaburi R, Sawelson S, Kopple JD. Endurance exercise training during haemodialysis improves strength, power, fatigability and physical performance in maintenance haemodialysis patients. *Nephrol Dial Transplant*. 2005;20:1429–1437.
6. Raheleh Mohseni, Amir Emam Zeydi, EhteramosadatIlali, Mohsen Adib-Hajbaghery, Atieh Makhloogh: The Effect of Intradialytic Aerobic Exercise on Dialysis Efficacy in Hemodialysis Patients: A Randomized Controlled Trial. *Oman Med J*. 2013 Sep; 28(5): 345–349.
7. Kirsten L. Johansen, Patricia Painter. Exercise in Individuals with CKD. *Am J Kidney Dis*. 2012 Jan; 59(1): 126–134.
8. Painter P, Johansen KL: Improving physical functioning: Time to be a part of routine care. *Am J Kidney Dis* ;48 : 167 –170.

Dr Rajesh Pramanik