Libyan Journal of Medical Research (LJMR) eISSN:2413-6096

Case Report

Peritoneal Dialysis in High-Risk Occupations.

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ABSTRACT

Renal Replacement Therapy (RRT), involving two modalities of dialysis, namely haemodialysis (HD) and/or peritoneal dialysis (PD) remain the mainstay of therapy for patients with End Stage Renal Disease (ESRD) worldwide. The goals of renal replacement therapy are multi-pronged. They are not only limited to ensuring patient survival, but also improving patient overall well-being and quality of life. The relationship between employment and quality of life are often closely linked. Peritoneal dialysis provides patients with greater flexibility, independence and control over their treatment. This is particularly advantageous to the working ESKD patients. On the other hand, HD sessions can often interfere with work schedules due to HD facility attendance and the duration of each session. This case report highlights PD and its impact on improved quality of life by specifically supporting the case patient 's ability to maintain employment as a commercial truck driver. In addition, it edifies both ESRD patients and clinicians, particularly in developing countries, on the advantages of PD. These advantages extend beyond the physiological preservation of residual renal function and patient survival, but also embody the improvement of the overall well-being and quality of patients' lives by broadening the employment horizon of patients in even high-risk occupations such as commercial truck driving.

Keywords: peritoneal dialysis, quality of life, employment, truck driving

Citation: *Miranda M. Kgomego , **Declercq Chloe, Bashir Salah . peritoneal dialysis in high-risk occupations.***https://doi.org/10.26719/ljmr.v17i2.03
Received: 20/10/2023; **accepted**: 27/10/23; **published**: 31/12/2023

INTRODUCTION

More than 1.9 million people with End Stage Renal Disease (ESRD) worldwide, are estimated to be on Renal Replacement Therapy (RRT), including haemodialysis (HD) and peritoneal dialysis (PD) respectively.[1] The growing prevalence of non-communicable diseases like type 2 diabetes mellitus, hypertension, and obesity exponentially increases the risk of Chronic Kidney Disease (CKD).[1] Truck drivers bear a disproportionate global burden of disease, including diabetes, hypertension, obesity, cardiovascular diseases, sexually transmitted illnesses and an array of chronic mental health conditions.[2] The trucking occupation by virtue of its need for continuous travel, as well as irregular schedules, sedentary

lifestyle, unhealthy food choices on the road and poor access to healthcare places drivers at high risk of CKD and poor health outcomes. This is specifically important in sub-Saharan Africa, where the trucking industry makes up an integral part of the transportation networks and broader economy due to lack of waterways and inadequate railway services.[2]

Among the multitudes of ESRD patients estimated to be on RRT, HD continues to be the most common form of dialysis therapy in nearly all countries.[1] With regard to the quality of life, the various modalities of RRT have their distinct advantages and disadvantages. Peritoneal dialysis allows for greater flexibility and control over treatment, which is advantageous for working individuals. On the other hand, HD sessions can often interfere with work schedules due to HD facility attendance and the time commitment required. The objective of this case report is to highlight peritoneal dialysis and its impact on a CKD patient 's ability to maintain employment in commercial.trucking.

CASE PRESENTATION

51-year-old male patient from Mpumalanga, South Africa.

Past medical history: His comorbidities are human immunodeficiency virus (HIV) infection and hypertension (HPT) on treatment for several years. He was recently diagnosed with End Stage Renal Disease (ESRD) at district hospital with eGFR of 1 mL/min/1.73 m^2 and creatinine 3900 umol/L.

Social history: He is married, father of three school-going children, sole breadwinner, lives with his family 45km away from the nearest state HD facility. He has a 4-bedroom brick house with electricity and access to outside municipal water pump. He is a permanently employed in a logistics company as a commercial truck driver since 2019. He is responsible for transporting various materials within South Africa and its neighboring countries. Often performing overnight routes.

Presentation: Once diagnosed with ESKD at his district hospital, the patient was referred to our facility for further management.

Upon admission, the patient required urgent acute hemodialysis due to refractory metabolic acidosis, refractory hyperkalemia and uremic encephalopathy. He was later diagnosed with CKD likely secondary to hypertensive and HIV-associated nephropathy, requiring chronic HD.

Unfortunately, his original file was lost containing in-depth notes of his transfer, admission and investigations done.

Management: The patient was assessed by our renal committee and accepted into the chronic hemodialysis program; starting with thrice weekly HD sessions. However, his newly initiated thrice weekly chronic HD sessions at the dialysis unit did not comply with his truck driving schedule. It was either HD and unemployment, or employment with a change in dialysis modality.

In-depth discussions between the renal committee, patient, family, and his employer were held on the reasonable accommodation and adaptation of his role as a truck driver. A medical fitness to work assessment & certification by an occupational health practitioner was requested, which declared him fit to

continue work as a truck driver. He was then accepted for change in dialysis modality from HD to PD. This modality change allowed him to continue his employment as a truck driver.

A peritoneal dialysis catheter was inserted into his abdomen, followed by a 2-week resting period. During this time, the patient continued with his usual chronic HD sessions. Thereafter patient was readmitted for PD training until well trained and ready for discharge.

Arrangements were made with his employer to continue his driving position while still undergoing daily dialysis. His shifts were adapted from previous overnight routes, to daily travels.

His PD sessions involved 2 exchanges in the morning prior to work. After waking up in the morning he dialyzed with 1,5% solution, ultrafiltrated (UF) that bag, then dialyzed with an icodextrin 4.5% solution. This will remain in his abdomen until 16:00 at the end of his shift. Thereafter he will perform 2 more exchanges of 1.5% solution of 4 hours each.

DISCUSSION

The goals of RRT such as peritoneal dialysis are multi-pronged and not only limited to ensuring patient survival but also improving the overall well-being and quality of CKD patients' lives. The relationship between employment and quality of life is often closely linked, stable employment provides individuals with a sense of purpose, financial security and social connection, which are all contributors to individuals' overall well-being and standard of living.

Patients receiving RRT generally sustain many losses, including decreased health, workplace absenteeism, weaker friendship ties & social connections, conflicts in the family, financial difficulties and lost life expectations and opportunities. Unsal et.al reports that conflicts have been observed mostly in families where dialysis patients experience labour loss, especially in cases where the patient is the bread winner. Several studies have also shown that ESRD patients on RRT find it challenging to maintain employment due to physical demands of the condition and need for regular medical follow-ups & treatment, as well as social inequalities often faced by ESRD patients regarding employment opportunities.[3-4] In addition, Kirkeskov[3] noted that the positive predictors for employment during dialysis and post-transplant were being male, of younger age, without diabetes, a higher educational level and being on peritoneal dialysis. This is particularly relevant in our index patient, who is male, non-diabetic, on peritoneal dialysis and a sole breadwinner to a family of four. While his demographics and medical history are a good predictors of maintaining job employment as reported by Kirkeskov[3], it is vital to note that loss of employment in this case could lead potentially devastating biopsychosocial outcomes for the patient and his family.

In contrast to PD, Unsal et.al found that HD patients experienced decreased social support in the dialysis process, which could be attributed to the extended periods of time spent away from home due to travelling and haemodialysis facility attendance. Furthermore, he noted that medical treatment on its own was not effective in the improvement of morbidity and mortality of ESRD patients receiving

peritoneal dialysis and/or haemodialysis but addressing the psychosocial requirements & financial challenges often faced by these patients was also essential in improving their morbidity and mortality. This significantly supports the importance of multidisciplinary teams in dialysis committees and the urgent need for collaboration between healthcare workers and employers in ensuring continued employment amongst patients on RRT.

Peritoneal dialysis and commercial truck driving can also be a challenging combination due to the nature of both activities. Peritoneal dialysis requires regular exchanges of fluids throughout the day, which may make it difficult for individuals to adhere to their treatment schedule while on the road for long periods of time. Furthermore, driving trucks also involves long hours of sitting and potentially irregular sleep patterns, which can have a negative impact on the overall health and well-being of individuals with ESRD. The physical demands of loading and unloading cargo can also be strenuous for some individuals on peritoneal dialysis.

It is noteworthy that patient circumstances vary and potentially influence successful management of peritoneal dialysis while employed. Careful planning & coordination with healthcare providers, as well as open communication with employers to ensure that there's reasonable accommodation of medical and work-related needs as required by the South African Employment Equity and Labour Relations Act on the Code of good practice is key in ensuring RRT patients on PD remain at work.

Ultimately, the feasibility of combining peritoneal dialysis and truck driving depends on various factors including the individual's overall health, the specific requirements of their dialysis treatment, and the ability to maintain a healthy work-life balance. It is recommended that individuals discuss their specific situation with their healthcare team and explore potential options and accommodations that may be available.

While there are employment limitations for patients on RRT, this is the first reported case in South Africa of a commercial truck driver utilizing PD. Not only does PD dramatically improve the patient's quality of life and reduce financial burden on the state, but it also paves way for broader employment opportunities for CKD patients on RRT in South Africa.

CONCLUSION

This case edifies both ESRD patients and clinicians particularly in developing countries on the advantages of PD beyond the physiological preservation of residual renal function and ultimately patient survival, but also on improving the overall well-being and quality of patients' lives by broadening the employment horizon of patients in even high-risk occupations such as truck driving. In addition, It also highlights the crucial role multidisciplinary teams play in ensuring the provision of comprehensive, coordinated and individualized care that not only improves patient outcomes but enhances their overall quality of life.

Future research should focus on intervention through education, social support systems, and workplace and task

adaptation to find the best support systems to support ESRD patients on RRT stay employed

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