STUDENTS' CORNER
LETTER TO THE EDITOR

Comparative analysis of peritoneal dialysis and hemodialysis for the management of kidney failure: A concise review

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Madam, Chronic kidney disease has a high prevalence, affecting approximately 10-13% of the population. It is a chronic and advancing condition that carries an elevated risk of cardiovascular complications. In the early stages, patients often remain asymptomatic, Treatment options for chronic kidney disease include conservative management for patients with a glomerular filtration rate above 15 ml/minute, and replacement therapies like Haemodialysis (HD), Peritoneal Dialysis (PD), and kidney transplantation.[1]

Peritoneal dialysis involves solute and fluid exchange across the peritoneal membrane, utilizing diffusion, convective transport, and osmosis. Adjusting the flow rate of dialysis solutions optimizes solute and fluid removal, while various techniques enhance these transport characteristics. Peritoneal dialysis has advantages such as home-based therapy, ease of implementation, travel flexibility, lower cost, and suitability for specific patient groups. It allows continuous fluid and solute removal while preserving residual renal function. However, potential disadvantages include infection risks, limited dialysis adequacy, possible malnutrition, concerns about long-term viability, and psychological and fatigue-related issue.[2]

Haemodialysis is a widely used treatment for patients with acute and chronic renal failure, removing waste products through semipermeable membranes. It is commonly employed in medical emergencies like fluid overload and hyperkalaemia, as well as various types of renal failure. However, haemodialysis demands substantial dedication and time from both patients and healthcare providers and may not be appropriate for all individuals with renal insufficiency. Treatment-related side effects include cramps, hypotension, issues with blood access, and reactions to dialyzer membranes. It should be noted that haemodialysis does not address the underlying disease but instead prolongs life and allows for the progression of multiple systemic conditions.[3]

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The choice between PD and HD is crucial for patient outcomes. Studies on survival rates show mixed results, initially favouring PD due to residual renal function (RRF), but as RRF declines, there are potential risks. HD is generally preferred over PD for diabetic patients, with different risks of bone lesions. PD preserves renal function and improves quality of life as a home-based treatment. An integrated PD/HD programme in dialytic centres provides comprehensive care for uraemic patients.[4]

In conclusion, the selection between PD and HD depends on factors such as medical suitability, lifestyle, travel considerations, cardiovascular health, and resource availability. PD offers flexibility and independence, while HD can provide more efficient clearance of waste products and toxins from the body. Ultimately, the decision between PD and HD should be made in consultation with a healthcare team, considering individual circumstances, preferences, and the patient's overall health.

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