

Peritoneal dialysis beyond kidney failure?

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Abstract

Compared to extracorporeal modalities, peritoneal dialysis (PD) is less invasive and more cost-effective, wherein blood is dialyzed intra-corporeally against a solution instilled in the peritoneal cavity. Although PD is mainly indicated for patients with end-stage renal failure, it has also been used for several non-renal indications. The aim of this review is to provide an overview of the role of PD beyond kidney failure. The alternative indications of PD include hypothermia, congestive heart failure, hyperammonemia and poisoning with xenobiotics. The use of PD as a treatment for acute pancreatitis and psoriasis was initially proposed but could not be established; these indications are therefore classified as historically relevant. Recent developments have led to a potential application of PD during the management of stroke and as an oxygenation therapy with the use of oxygen carriers. Novel colloid-based dialysates with improved functionality with respect to detoxification and oxygenation are currently underway, though their efficacy has so far only been demonstrated in pre-clinical settings. Finally, insight into potential future developments of PD is given. Characterization studies are proposed to better understand the fate of non-recovered carriers following dialysate removal, their efficacy following multiple administrations and potential immune response to optimize their formulation, enabling their clinical translation.