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Peritoneal Dialysis: a Viable Therapy Following Ventricular Assist Device Implantation

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Background: End-stage kidney disease is a common complication of Cardiorenal Syndrome. Dialysis management in this setting is challenging as haemodynamic instability can limit ultrafiltration goals. Patient complexity, instrumentation (particularly Ventricular Assist Devices [VADs]), and accompanying transperitoneal drivelines present a barrier to uptake. **Here, we describe the successful application of peritoneal dialysis (PD) in a patient with a VAD.**

Outcomes: PD supported cardiac function, reliably achieving MAP between 75-94mmHg. Following improvements in fluid state, energy levels, nutrition and global function, the patient progressed to candidacy for combined heart-kidney transplantation. **This case study illustrates the potential benefits of PD in patients at risk of cardiac instability.**

Case Description: 62-year-old male with end-stage non-obstructive dilated hypertrophic cardiomyopathy underwent a VAD implantation. Renal function deteriorated in the setting of post-operative decompensated heart failure, necessitating a transition to intermittent haemodialysis (HDx). The patient failed to thrive on HDx, suffering from ongoing symptomatic cardiac decompensation (mean arterial pressure (MAP) of <58mmHg). A Tenckhoff catheter was placed percutaneously and the patient commenced on PD.

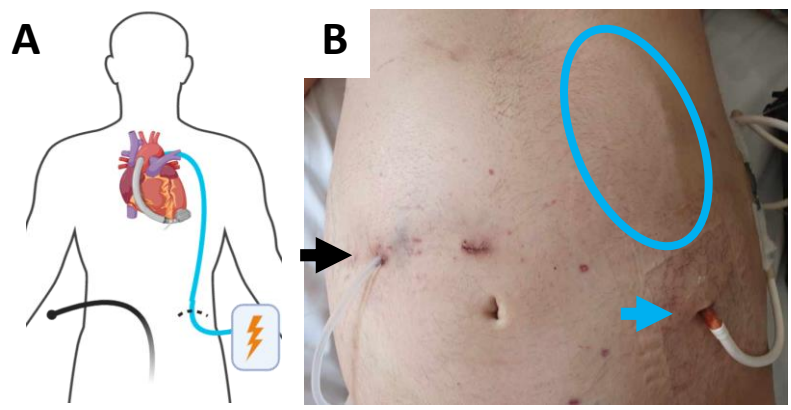

Figure 1. Abdominal VAD driveline and Tenckhoff Placement. VAD driveline (blue) inserted percutaneously. Tenckhoff catheter (black) inserted percutaneously 6-7 months post VAD insertion. Shown in diagram (**A**) and on patient (**B**).

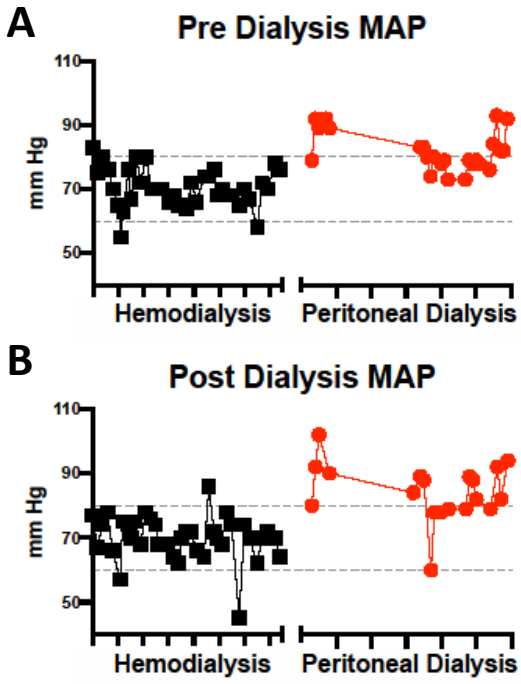

Figure 2. Pre and Post Dialysis Mean Arterial Pressures are more stable on PD. HDx is displayed two month prior to PD transition. PD is displayed for the two months post transition. Diagram (**A**) Pre dialysis MAPs and (**B**) Post Dialysis MAPs.

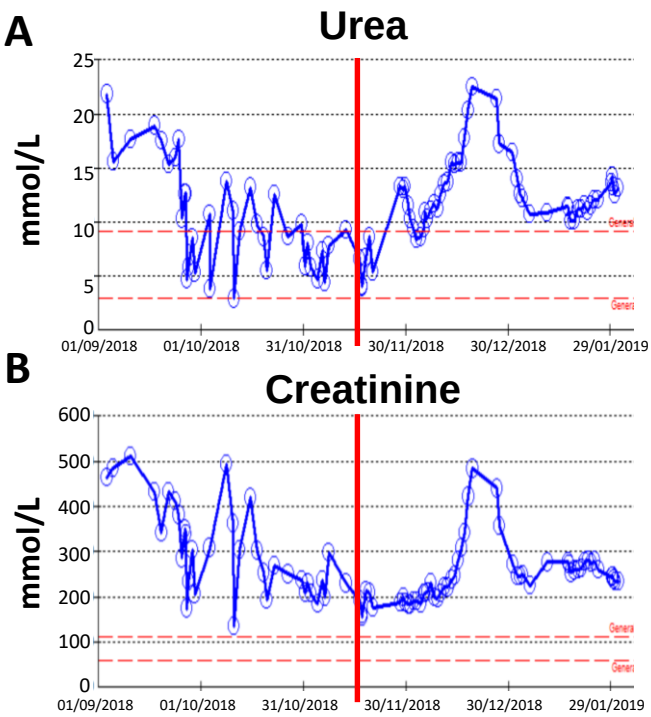

Figure 3. Serum Urea and Creatinine remain stable upon transition from intermittent HDx to PD. Patient serum levels of Urea (**A**) and Creatine (**B**) taken over four-month period. Red line indicates Transition from HDx to PD.

Future Implications: As of January 2020 we have commenced a second patient with an L(VAD). Commencement of PD has led to a rapid de-escalation of care. Currently this patient is undergoing cardiac rehab with a view to a combined hear/kidney transplant.