**Effect of peritoneal dialysis on the 24-hour glycaemic profile of non-diabetic patients**

**Background**

Cardiovascular disease remains a major cause of morbidity and mortality in patients receiving peritoneal dialysis (PD). The majority of this excess burden is attributable to chronic uraemia however concerns have been raised that the remainder may be the result of the dialysis process itself. Glucose from traditional dialysis solutions is absorbed directly into the systemic circulation. Continuous glucose monitoring in diabetic PD patients has demonstrated increased glycaemic variability and exaggerated postprandial hyperglycaemia. We aim to investigate the effect of glucose-based dialysis solutions on the 24-hour glycaemic profiles of non-diabetic individuals.

**Methods**

11 non-diabetic participants were recruited; 5 patients with CKD stage 5 (pre-dialysis controls) and 6 PD patients. Participants undertook 72 hours of continuous interstitial glucose monitoring using a factory-calibrated flash glucose monitor (FreeStyle Libre, Abbott Diabetes Care, Alameda, CA). During the monitoring period they recorded details of food intake and PD exchanges.

**Results**

72 hours data was obtained from all participants. There appears to be a trend towards increased overall glycaemic variability in PD patients versus controls. In the 2 patients receiving night-time automated PD, interstitial glucose levels were maintained above fasting levels for the duration of the therapy, falling to fasting levels on therapy completion. For PD patients the difference between mean daytime and mean night-time glucose was twice that of the controls (1mmol/l vs.0.45mmol/l). This appears to be the result of increased mean daytime glucose concentrations in the 4 patients receiving continuous ambulatory PD.

**Conclusions**

This pilot data indicates that flash glucose monitoring may be useful for investigating the effect of glucose-based PD solutions on non-diabetic patients. Monitoring is minimally invasive and acceptable to a non-diabetic cohort. Preliminary analysis suggests increases in mean glucose levels and glycaemic variability. We intend to explore this further with a larger cohort.