Landmark study provides key to improved survival in peritoneal dialysis patients

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Clinicians and scientists from Keele and Cardiff universities have published data from a landmark study that explains why survival in patients on peritoneal dialysis is low.

Peritoneal dialysis (PD) is a treatment for over 250,000 patients with chronic kidney disease worldwide, using the patient's peritoneum in the abdomen. Currently, only one in ten PD patients survives beyond 10 years on dialysis. For each one-year increase in the patient's age, the risk of death increases by 4% and patients with diabetes have a 30% increased risk of death.

Scientists have now discovered that inflammation in the body and in the peritoneal cavity (where dialysis is performed) are a separate process, which has implications for both the ability to perform dialysis and patient survival. In effect, systemic (whole body) inflammation controls the outcome (survival) whilst peritoneal inflammation controls membrane survival.

Professor Nicholas Topley from Cardiff University and Professor Simon Davies from Keele University designed the study that has taken 12 years to complete:

"Improving survival and doing better dialysis to improve quality of life is the key goal of our research," said Professor Topley from Cardiff University's School of Medicine. "This study was a hard one to bring home because of its length of follow up and the logistics of collecting

patient samples worldwide. The importance of the results is self-evident - this is a big leap forward for PD."

Professor Simon Davies, lead investigator from Keele University, said: "We will now be able to target inflammation to improve survival and recovery. Of course there is more to be done but this will form the basis of understanding that to holistically treat the patient one needs to define the clinical problem."

The 12-year international study, with 10 centres in the UK, Korea and Canada, is the longest and largest of its kind. Researchers recruited more than 1500 patients to the study over a 10-year period and then performed a detailed clinical and immunological analysis of samples obtained from PD patients. This for the first time characterised inflammation in these patients and linked it directly to patient outcomes.

The data will enable clinicians who treat PD patients to be able to target treatment where it is needed, thereby improving and extending the therapy, quality of life and reducing treatment failure.

Dialysis treatment is a daily reality for patients with kidney failure which can last for many years and incurs a huge annual cost for the NHS. A UK estimate suggests that renal disease costs the NHS in England £1.45 billion and £800million in Wales, annually.

More than 250,000 patients worldwide use peritoneal dialysis as their primary form of renal replacement therapy.

More information: 'Independent Effects of Systemic and Peritoneal Inflammation on Peritoneal Dialysis Survivalis published today in the *Journal of the American Society of Nephrology*.