PERSONAL DIALYSIS CAPACITY (PDC) TEST and the PERITONEAL EQUILIBRATION TEST (PET) to discriminate inflammation from other causes of FTS.

The study included 135 patients who commenced peritoneal dialysis between January 1998 and December 2003. All patients underwent a PDC test and a PET; C-reactive protein levels were used to determine presence of inflammation.

Inflammation was present in 25 patients. Correlations were observed between large pore flux ($J_{V,L}$; used in the PDC test) and inflammation, but no correlation was seen between dialysate : plasma creatinine concentrations (used in the PET) and inflammation. Patients with a larger $J_{V,L}$ than would be predicted by their total pore surface area over diffusion distance ratio (A_0/dx) had higher mortality than those with 'normal' $J_{V,L}$. Dialysate : plasma creatinine ratio was not related to mortality, and substantial misclassification of inflammation occurred using the PET.

The authors conclude that the PDC test provides more information regarding peritoneal membrane status than the classic PET, and can differentiate between FTS caused by inflammation and that resulting from anatomic factors.

Rebecca Ireland

Original article Van Biesen W *et al.* (2006) The personal dialysis capacity test is superior to the peritoneal equilibration test to discriminate inflammation as the cause of fast transport status in peritoneal dialysis patients. *Clin Am Soc Nephrol* 1: 269–274

Novel treatment improves intradialytic hypotension

Long-term hemodialysis for end-stage renal disease can cause complications such as intradialytic hypotension. Intradialytic hypotension often leads to dialysis interruption, and the resulting limited dialysis time can increase morbidity and mortality. It has been suggested that ischemia-induced accumulation of locally released adenosine leading to vasodilation might have a key role in sudden drops in blood pressure during dialysis. Researchers have investigated the effects of FK352, an adenosine A_1 antagonist, on this clinical phenomenon.

In total, 14 chronic hemodialysis patients with intradialytic hypotension were assigned to a placebo group, and 16 patients were assigned to receive 50 mg intravenous FK352

1 h after commencement of each dialysis session. The 4-week treatment period followed a 4-week observation period.

FK352 treatment reduced the incidence of intradialytic hypotension, whereas placebo had no effect. The incidence of hemodialysis discontinuation was reduced in all patients treated with FK352, but in only one placebo patient. No adverse effects related to use of FK352 were observed. A larger scale trial is needed to confirm the effectiveness of this novel treatment and to determine appropriate dosage levels.

Rebecca Ireland

Original article Imai E *et al.* (2006) Adenosine A_1 receptor antagonist improves intradialytic hypotension. *Kidney Int* 69: 877–883

A noninvasive proteomic method for early detection of renal allograft rejection

Researchers in Germany have found that analysis of urine proteins using SURFACE-ENHANCED LASER DESORPTION/IONIZATION TIME-OF-FLIGHT MASS SPECTROMETRY (SELDI-TOF-MS) can be used to reliably diagnose acute allograft rejection in kidney transplant recipients. This noninvasive tool might be preferable to renal biopsy, the current gold-standard diagnostic method.

The retrospective analysis included 23 renal transplant recipients with clinical symptoms of rejection, including increased graft volume, proteinuria and decreased diuresis. Of these patients, renal biopsy revealed that only 13 actually had acute rejection. Midstream urine samples from all subjects were analyzed using two ProteinChip® (Ciphergen Biosystems Inc., Fremont, CA) arrays with different chromatographic surfaces, followed by SELDI-TOF-MS. Cluster-and-rule-based data mining identified two biomarkers that had high diagnostic sensitivity and specificity for biopsy-proven acute rejection. The researchers proposed that these two biomarker proteins (molecular weights 25,708 kDa and 28,133 kDa) might be GLUTATHIONE-S-TRANSFERASE and TISSUE PLASMINOGEN ACTIVATOR. Further investigation is required to validate these findings, identify other potential biomarkers and improve our understanding of the pathology of acute allograft rejection.

SELDI-TOF-MS-based ProteinChip® analysis is less expensive and more convenient than renal biopsy; it is also quicker and requires

GLOSSARY

PERSONAL DIALYSIS CAPACITY (PDC) TEST

A test that uses a computerized model to describe peritoneal membrane transport characteristics; input parameters are the surface area over diffusion distance ratio (A_0/dx), the reabsorption parameter and large pore flow ($J_{V,L}$)

PERITONEAL EQUILIBRATION TEST (PET)

A clinical tool used to characterize peritoneal membrane transport properties; the main input parameter is the dialysate : plasma creatinine concentration ratio

SURFACE-ENHANCED LASER DESORPTION/IONIZATION TIME-OF-FLIGHT MASS SPECTROMETRY (SELDI-TOF-MS)

Technology that combines mass spectrometry with varying affinity-chromatographic chips

GLUTATHIONE-S-TRANSFERASE

An enzyme that protects cells against the potential toxicity of a number of compounds

TISSUE PLASMINOGEN ACTIVATOR

An enzyme that generates plasmin from plasminogen; produced by both normal and invasive cells