A new safety device to detect bleeding from the venous puncture site during hemodialysis

Accidental venous needle dislodgement from the arteriovenous fistula or graft can lead to serious and even fatal bleeding in hemodialysis patients. Dislodgement is not detected by the venous pressure meter of the dialysis monitor. Ahlmén *et al.* have tested an adhesive blood-sensing patch that alerts patients and health-care personnel to blood loss from the venous needle puncture site.

The device was tested in 213 dialysis sessions performed at 5 Swedish dialysis centers in 41 patients with arteriovenous fistulas. This analysis included 200 of the test dialysis sessions. After 129 tests, the device was slightly modified to improve its sensitivity. In 185 (92.5%) tests, either the device correctly detected blood loss (179 tests) or a warning light appeared to indicate failure of the sensor (6 tests). Most (77%) activations of the device were triggered by needle removal at the end of dialysis. In 15 tests, the device failed to activate despite blood loss; of these incidences, 13 occurred with the unmodified device and only 2 occurred with the modified version.

All 10 nurses involved in the trial stated that the device increased their sense of security, and on a scale of 0–5 (5 meaning that the device interfered with their work very much) they gave the device an average rating of 1.0. Patients rated the extent to which routine dialysis was hampered by the device as 0.2 on a scale of 0–5.

Patient supervision at ordinary dialysis centers is the responsibility of a decreasing number of nurses, meaning that the new device could be particularly useful.

Original article Ahlmén J *et al.* (2008) A new safety device for hemodialysis. *Hemodial Int* **12:** 264–267

Goal-directed plasma exchange is effective in biopsy-confirmed cast nephropathy

Many patients with multiple myeloma develop renal failure, often owing to light chain cast nephropathy. Although several randomized trials have examined the efficacy of plasma exchange for cast nephropathy, each study has suffered from serious limitations; hence, the utility of this treatment remains uncertain. Leung *et al.* retrospectively examined the effectiveness of plasma exchange, as guided by serum free-light-chain level (sFLC), in 40 patients with multiple myeloma and renal failure.

Renal biopsy, which was carried out in 28 cases, identified pure cast nephropathy in 18 patients. Following 5 exchanges or more, 18 of 40 (45%) patients overall and 9 of 18 (50%) patients with biopsy-proven pure cast nephropathy achieved a renal response (i.e. halving of serum creatinine level from baseline, and freedom from dialysis, at 180 days). There were no significant differences between responders and nonresponders in terms of age, sex, baseline serum creatinine level or baseline estimated glomerular filtration rate. Among the patients in whom sFLC was measured before and after plasma exchange, sFLC was reduced by >50% in 11 of 14 (79%) responders but in only 6 of 14 (43%) nonresponders ($P=0.05$). The association between sFLC reduction and renal outcome was most marked in patients with cast nephropathy—77.8% of these individuals achieved a response when their sFLC was reduced by >50%, whereas none with a <50% reduction in sFLC showed marked improvement in renal function.

The authors conclude that plasma exchange can be effective in biopsy-proven cast nephropathy if it markedly reduces sFLC. Plasma exchange does not seem to have a role in the treatment of undifferentiated renal failure.

Original article Leung N *et al.* (2008) Improvement of cast nephropathy with plasma exchange depends on the diagnosis and on reduction of serum free light chains. *Kidney Int* **73:** 1282–1288

Gadolinium 'safer' than iodinated contrast for interventional renal angiography

Iodinated contrast agents used for angiography can cause contrast nephropathy, particularly in patients with pre-existing kidney disease. Case reports indicate that gadolinium contrast agents could be safer in this population.

Garovic and co-workers retrospectively identified 163 patients with pre-existing renal insufficiency (serum creatinine ≥176 µmol/l [2 mg/dl]) and resistant or accelerated hypertension or presumed ischemic nephropathy, who had received gadolinium, iodinated contrast, or a combination of both agents for intra-arterial