risk factor for relapse of TTP. Lactate dehydrogenase and markers of haemolysis are not routinely ordered in our intensive care unit; this fact, together with the not unusual fall of platelets in patients after cardiac surgery, resulted in delayed recognition of TTP relapse. This case clearly demonstrates that every postoperative decrease in the number of platelets in a patient with TTP should be considered as a relapse and calls for intensive medical supervision. Relapse may become fatal without the prompt institution of plasma exchange.

Cardiac involvement in TTP demands more extensive research, and patients should regularly be screened for the presence of heart abnormalities (ECG, ultrasonography), even when asymptomatic. Relapse of TTP after cardiac surgery is unpredictable, but our report supports the observation of Anstadt et al. that deficient vWF-cleaving protease activity increases the risk of relapse [10].

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(See related article by Patschan et al. NDT Advance Access publication March 30, 2006. doi:10.1093/ndt/gfl127.)

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Is oxidative stress implicated in high bone turnover in end-stage renal disease (ESRD)?

Sir,

End stage renal disease (ESRD) is a condition in which oxidative stress is much enhanced and implicated in a variety of uremic complications [1,2]. Oxidative stress influences bone turnover [3,4] and in theory may also play a role in bone disease in ESRD. To explore this hypothesis, we investigated the relationship between an oxidative stress marker such as oxidized LDL (ox-LDL) and a specific biomarker of bone turnover [5] alkaline phosphatase (AlkPhos) in the cardiovascular risk extended evaluation in dialysis (CREED) database [6]. We excluded from the study all conditions that may independently influence bone turnover (diabetes, parathyroidectomy, treatment with aluminium hydroxide or beta-blockers). Thus, from an original cohort of 283 individuals, 161 dialysis patients (age 62±16 years, 93 males and 68 females) were included in this analysis.

As shown in Figure 1, there was a graded increase in serum levels of AlkPhos across tertiles of ox-LDL and this association also held true when ox-LDL and AlkPhos were analysed as continuous variables (r = 0.31, P < 0.001). Such an association remained highly significant (β = 0.21, P = 0.005) even after adjustment for a series of potential confounders such as age, sex, duration of dialysis, treatment modality, use of calcium carbonate or calcium acetate, serum calcium and phosphate, body mass index and serum C-reactive protein.

In patients with ESRD, serum levels of AlkPhos are directly related to ox-LDL and this association is independent of a series of potential confounders. We believe that our observation is hypothesis-generating in that it suggests that the effects of oxidative stress in ESRD may also encompass bone disease. Further studies, considering more refined markers of bone turnover and of oxidative stress and interventions in experimental models, represent useful areas to further explore the link between bone turnover and oxidative stress in ESRD.

Fig. 1. Association between ox-LDL, expressed as tertiles, and total AlkPhos. As total AlkPhos was not normally distributed, data were expressed as geometric mean ± SD.
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Persistent and symptomatic post-transplant hyperparathyroidism: a dramatic response to cinacalcet

Sir,

We read with interest the articles by Kruse *et al.* [1] and Serra *et al.* [2], which demonstrated the beneficial effect of cinacalcet HCl in the treatment of persistent hyperparathyroidism following renal transplantation. We would like to report our own experience of one selected case of post-transplant hyperparathyroid bone disease, which highlights not only normalization of laboratory-measured parameters but also a dramatic response in symptomatology.

A 79-year-old lady with stable graft function (serum creatinine 96 μmol/l) 13 years post-transplant on cyclosporin monotherapy developed widespread bone pain and myalgia requiring opiate analgesia and eventual hospitalization. Investigations revealed the following: plasma intact parathyroid hormone (PTH) 2690 pg/ml, alkaline phosphatase (ALP) 689 U/l, calcium 2.07 mmol/l and phosphate 0.98 mmol/l. X-ray of her hands showed evidence of early hyperparathyroid bone disease.

Her hyperparathyroidism was refractory to vitamin D therapy and, due to multiple comorbidities, she was deemed unfit for parathyroidectomy. She was, therefore, treated with cinacalcet at a starting dose of 30 mg daily, reducing to alternate day dosing following the development of hypercalcemia. PTH fell to 470 pg/ml after 2 weeks of therapy, this response being sustained over almost 4 months (237 pg/ml at 15 weeks). ALP fell to 342 U/l and calcium and phosphate levels remain within normal limits at 15 week follow-up. Most importantly, her severe bone pain and myalgia have improved dramatically allowing withdrawal of opiate analgesia, significantly improving her quality of life. There has been no change in graft function, blood pressure control or other medication during this time and she has suffered no side effect attributable to cinacalcet.

This patient demonstrates a dramatic and sustained response to cinacalcet, characterized by a 91% fall in PTH (Serra *et al.* [2] observed an 18% reduction) and resolution of symptomatic hyperparathyroidism, previously effected only in renal transplant patients by parathyroidectomy. We would, therefore, advocate a role for cinacalcet in transplant recipients with symptomatic persistent hyperparathyroidism who are not suitable for parathyroidectomy.

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Estimation of glomerular filtration rate in patients with normal serum creatinine undergoing primary PCI: is it really normal?

Sir,

Kidney disease and cardiovascular disease seem to be lethally synergistic and both approach a level of epidemi, particularly in the elderly. The 2002 DOQI (Dialysis Outcomes Quality Initiative) states that individuals with a reduced glomerular filtration rate (GFR) are at greater risk for cardiovascular disease (CVD) and cardiac deaths [1]. The ability to identify chronic renal insufficiency may allow early implementation of treatments that could arrest or delay the progression of renal damage, enable effective treatment of its complications and reduce the risk of drug-induced nephrotoxicity. Contrast nephropathy is a potentially serious complication of diagnostic angiography and percutaneous coronary intervention (PCI) [2]. Unfortunately, the cardiovascular risk increases in a concentration range of serum creatinine where this parameter is very insensitive to changes in GFR. The current Kidney Disease Outcomes Quality Initiative (K/DOQI) guidelines advocate creatinine-based equations for estimating the GFR to identify patients with potential kidney disease and to classify them into different stages on the basis of these values [1].

The aim of our study was to establish the prevalence of kidney dysfunction in patients with normal serum creatinine...