Individual kidney function in atherosclerotic renal-artery disease

Atherosclerotic renal-artery stenosis is usually an asymmetrical process and decisions to attempt revascularization have been made on the basis of renal size since the original paper by Morris et al. [1]. Results of intervention by angioplasty or surgery have been measured in terms of overall renal function even where unilateral arterial intervention has occurred [2]. We have introduced an estimation of individual renal function in atherosclerotic renal disease in our unit. We have combined two universally used tests [3,4]. A 99mTechnetium dimercaptosuccinic acid scintigraphy (99mTcDMSA) scan to determine relative renal function and 51Chromium ethylenediaminetetraacetic acid glomerular filtration rate (51Cr-EDTA clearance) to determine overall renal function. Both of these tests have been widely validated in renal disease. From these two tests divided function and overall function were measured, enabling a simple calculation of individual kidney function. We have used a novel approach in that we have combined the two studies by performing them in parallel. This only involves a single patient visit to determine individual kidney function. No patient was on an angiotensin-converting enzyme inhibitor (ACEI) at the time of determination of individual kidney function. We have sought to compare the estimation of individual kidney glomerular filtration rate (SKGFR) with the routinely reported bipolar ultrasound length and individual kidney function. Although more sophisticated estimations of renal volume may be available under trial conditions the bipolar renal length is the clinical information available to most nephrologists.

Figure 1 shows the correlation of renal function, renal-artery anatomy and bipolar renal length. The average time between ultrasound and individual kidney function was 5.1 months (range 6 to 54). The renal-artery anatomy was defined as: Normal. These were kidneys where either, (1) there was no stenosis on angiography but the contralateral kidney was either occluded or had renal-artery stenosis, (2) no renal-artery stenosis was demonstrated but aortography revealed widespread atheromatous disease.

Stenosis. These were kidneys where there was a stenosis of 50% or greater of the luminal diameter. These kidneys had not undergone angioplasty. Occluded. These were kidneys where angiography failed to show a patent renal artery.

Angioplasty. These were kidneys where previously a renal angioplasty had been performed for renal-artery stenosis. Stent. These were kidneys where an endovascular stent had been inserted at angioplasty. The mean time from angioplasty or stent to measurement of individual kidney function was 13.7 months, range 1–105.

The correlations were as follows:

Normal kidneys (n=22) with no renal-artery disease but contralateral disease or aortic atheromatous disease correlation coefficient \( r = 0.46, P < 0.05; \) kidneys with renal-artery stenosis (n=26) correlation coefficient \( r = 0.48, P < 0.05; \) kidneys with occluded renal arteries (n=8) correlation coefficient \( r = 0.59, P < 0.05; \) kidneys which had undergone angioplasty or endovascular stenting (n=15) correlation coefficient \( r = 0.12, P > 0.05; \) In paired SKGFR with a normal renal artery and contralateral renal-artery stenosis, it was suprisingly found that the function was greater in 6/11 pairs in the stenosed kidneys.

Although there was weak correlation between individual kidney function and bipolar renal length there was a striking spread of individual function for any kidney length. In the Normal group for a given bipolar length of 8–12 cm, individual kidney function varied from 4.4 to 73 ml/min, and in the Stenosis group there was a similar spread for a given bipolar length of 8–12 cm of 3.6–43.5 ml/min. In the Occlusion group there was, not surprisingly, poor function whatever the kidney length with, for a given bipolar length of 6–10 cm, a range of 0–11.5 ml/min. The largest kidney was 9.2 cm in length. The Angioplasty and Stent groups showed a pattern similar to the normal kidneys rather than the occlusion group with, for a given bipolar length of 8–12 cm, 5.7–61 ml/min. Once more there was a large spread of values of function for any kidney length.

We have attempted to gain more information on the function of individual kidneys in cases of atherosclerotic renal-artery stenosis. We feel that in routine clinical practice bipolar renal length is not a useful surrogate measure of individual renal function in atherosclerotic disease. Before attempting intervention, or in follow-up of intervention, some assessment of individual kidney function should be made. We would suggest that synchronous 99mTcDMSA scan and 51Cr-EDTA clearance could offer this test, as both are investigations already validated in renal disease and are in widespread use. Prospective studies of the use of sequential determinations of individual kidney function are needed in atherosclerotic renal disease. The estimation of individual kidney function would enable a better understanding of progressive dysfunction in individual kidneys as well as...
helping with assessment of renal arteries for angioplasty or reinvestigation after angioplasty.

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**Glomerulonephritis in sarcoidosis**

Sir,

Some years ago we reported that the distribution of historical varieties of glomerulonephritis in patients with sarcoidosis differed from that in the general population [1]. In particular we noted that an apparent significant association with membranous glomerulonephritis reflected a dearth of minimal-change disease in sarcoidosis. The case report of Parry and Falk [2] underlines this rarity. Their patient was also atypical in being steroid resistant and having renal impairment.

We believe that the extreme rarity of typical minimal-change disease in sarcoidosis could hold clues to the immunological mechanisms underlying the aetiology and/or the expression of minimal-change disease [3].

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**A case of membranous glomerulonephritis associated with adenocarcinoma of pancreas**

Sir,

Membranous glomerulonephritis (MGN) is relatively often associated with malignancies but there is only one previously reported association with carcinoma of pancreas [1]. We have recently reported a case of urinary peritonitis as a complication of renal biopsy which revealed early MGN [2]. The same patient was unfortunate enough also to have pancreatic carcinoma which was detected a few months after the onset of his renal disease.

We refer to the case report for details [2]. Briefly, a 70-year old man came to emergency for general oedema and dyspnoe.

Hypercholesterolaemia of 10.6 mmol/l had been detected 5 months earlier, and treatment with simvastatin had been initiated 5 weeks prior to admission. His blood pressure was normal. He had severe hypoalbuminaemia and mild anaemia. Serum creatinine and liver enzymes were normal. On chest X-ray, he had cardiac decompensation with pleural effusion and slight interstitial oedema. Proteinuria was 11.0 g per 24 h. Treatment with diuretics corrected the cardiac decompensation and ameliorated oedema. Ten mg of enalapril per day was initiated. On ultrasound, all intra-abdominal organs appeared normal. A biopsy from the left kidney revealed early MGN. The glomerular walls appeared evenly thickened, the epithelial surface was hairy or spiky, and there were evenly distributed subepithelial deposits. The interstitium was slightly fibrotic and scarcely infiltrated with mononuclear inflammatory cells. There was slight focal atrophy in the tubuli. On immunostaining, the glomerular capillary walls showed strong granular staining with anti-IgG-antibodies and moderate staining with anti-C3-antibodies. After the renal biopsy, a large perirenal fluid accumulation and, a few days later, urinary peritonitis developed, due to ureteral occlusion by a clot, and to a urinary fistula through the site of renal biopsy. In laparotomy performed for peritonitis, intra-abdominal organs including pancreas appeared normal on palpation. The urinary fistula healed with pyelostomy and peritoneal drainage. The patient had a medication of enalapril as above, 40 mg of furosemide twice daily, and 20 mg of simvastatin once daily. Two months after the primary admission, after the patient had recovered the complications of renal biopsy, a screening for malignancies was performed. It remained negative, as well as serology for hepatitis B and C, and for antinuclear antibodies.

The MGN was considered idiopathic. Prednisone 30 mg daily and omeprazol as ulcer protection were initiated. One month later, the patient was in a moderate condition, and serum albumin had slightly risen. Two months after the initiation of prednisone, the patient’s condition and laboratory results were unchanged, except that serum potassium had decreased to 3.5 mmol/l. Furosemide was reduced. After receiving prednisone for 3 months, the patient’s general condition had deteriorated, his weight was reduced by 10 kg, and his blood pressure was 95/60 mmHg. Blood glucose had risen to 9.4 mmol/l. Proteinuria was 8.1 g per 24 h. Other laboratory results were unchanged. The medication was generally reduced, prednisone included. Three weeks later, the patient came to the emergency for malaise, appearing exhausted, dehydrated, and slightly confused. He was normotensive, slightly tachycardic, and his abdomen was diffusely tender. Hyperglycaemia of 31.3 mmol/l and hypoponatraemia were detected, but there was no acidosis. Serum albumin had slightly decreased. Insulin treatment and rehydration with saline were initiated.

The first day after hospitalization, serum alanine amino transferase, alkaline phosphatase, and plasma ammonium were elevated 3- to 10-fold. On abdominal ultrasound, a tumour of pancreatic cauda 4 cm in diameter, and multiple hepatic metastases were detected. A cytological sample of the pancreatic tumour was obtained under ultrasound control. It showed incoherent tissue with strong atypia, the cells having hyperchromatic and enlarged nuclei, and relatively much vacuolized cytoplasm. The overall cytological picture matched ductal adenocarcinoma of pancreas. Diabetes was cured by cessation of prednisone. The patient refused chemotherapy, continued to deteriorate, and passed away after 19 days of hospitalization. His family denied autopsy.

We report here a case of MGN associated with pancreatic...
adenocarcinoma. Roughly, every fourth case of MGN is secondary, mostly to drugs, neoplasm and inflammatory processes. MGN is associated with neoplasm especially in elderly patients [3]. The association of MGN is relatively common with carcinomas of bronchus, oesophagus, stomach, colon, kidney, mammary gland, and with melanoma. Occasional association has been reported with carcinoma of ovary, bladder, prostate, uterine cervix, upper airways, bile duct, thyroid, skin, and with lymphoma, neuroblastoma and chronic lymphocytic leukaemia [3,4]. So far, only one patient has been reported to have simultaneously presenting MGN and pancreatic carcinoma [1]. Since MGN is the most common ethiology of nephrotic syndrome in the elderly [4], and pancreatic carcinoma is also relatively common in this age group, their coappearance in the present, as well as in the previous case may have been a coincidence. However, they presented concurrently, MGN giving symptoms first, as usual in secondary glomerulonephritis [5,6]. The interval between the presentations of the two diseases was only 4–6 months, suggesting that the pancreatic carcinoma already existed at the presentation of MGN. Unfortunately, it could be detected neither in the several ultrasound examinations, nor in the laparotomy performed for urinary peritonitis.

Tumour-specific antigens have been identified in the subepithelial glomerular deposits of MGN in several different carcinomas [3]. More often than sporadically, glomerular involvement of pancreatic carcinoma has been described in the form of micrometastases [7], and of mesangial IgA deposits [8], the latter being associated also with other mucin secreting malignancies. Simultaneous presentation of pancreatic carcinoma and membranous glomerulonephritis is apparently rare. Doubtless secondarity of MGN to pancreatic carcinoma has most probably never been indicated, e.g. by presenting antigens of pancreatic carcinoma in the glomerular deposits of MGN, or by simultaneous cure of the two diseases. In the present case, it was impossible for us to attempt isolation of tumour antigens, or their identification in glomeruli, as autopsy was denied. We should like to call for further descriptions of simultaneous presentation of pancreatic carcinoma and MGN, and for possible studies showing evidence for causal relationship.

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Angiotensin-converting enzyme gene polymorphism and antiproteinuric response to renoprotective therapy

Sir,

The antiproteinuric effect of angiotensin-converting enzyme (ACE) inhibitors in patients with renal disease of various origin has been well demonstrated. However, a considerable interindividual variability in the renal responsiveness to ACE inhibition is found in many studies. Recently, the insertion/deletion (I/D) polymorphism of the ACE gene has been shown to determine the plasma and tissue ACE concentrations [1]; homozygotes for the deletion (DD) having the highest and homozygotes for the insertion (II) having the lowest ACE-activity. The differences in plasma and tissue ACE-activity associated with the ACE genotype might affect the response to ACE inhibition explaining in part the interindividual variability observed in the renal response to ACE inhibition.

Data on ACE genotype as a determinant of the antiproteinuric response to ACE inhibition in renal patients are conflicting. In two studies from Japan, it was found that ACE inhibition reduced proteinuria only in patients with the DD genotype [2] and that the II genotype was associated with a poor antiproteinuric response [3]. In several studies from Europe, the antiproteinuric response to ACE inhibition in patients with II/ID genotype was similar [4,5] or better [6,7] than in DD homozygotes. In the present study, therefore, we analysed whether in proteinuric patients with glomerular diseases the antiproteinuric effect of renoprotective therapy was affected by the ACE genotype.

Seventeen patients (eleven men, six women) with normal or near-normal renal function and significant proteinuria (greater than 5 mg/kg/day) were retrospectively analysed according to the ACE genotype. The mean age was 31 years (range, 24–43 years). The underlying diseases included: IgA nephropathy (seven patients), membranous nephropathy (two patients), focal glomerulosclerosis (two patients), non-active lupus nephritis (four patients) and non-active crescentic glomerulonephritis (two patients). ACE genotype was determined by polymerase chain reaction with prevention of mistyping heterozygotes [8]. The medication instituted consisted of enalapril (eight patients; three DD and five ID genotypes) and losartan (nine patients; six DD, two ID and one II genotypes). During the period evaluated, patients adhered to a moderate sodium restriction of 70–110 mEq/day. Data on proteinuria and blood pressure during baseline and their responses after 6 months on therapy are shown in Table 1. Baseline values of proteinuria, blood pressure and renal function were not significantly different between the ACE genotype groups. A significant reduction in the degree of proteinuria was observed in the ID group, but not in the patients with the DD genotype. The blood pressure fall was similar in the two groups. No significant changes were noted in the GFR. The individual response of proteinuria is shown in Figure 1.

Although the number of patients was small and we have used two renoprotective regimens (an ACE inhibitor and an AT1 receptor blocker), this study suggests that patients with DD genotype are resistant to the antiproteinuric effect of renoprotective therapy. These results are in line with those...
Individual data on proteinuria at baseline and after 6 months of treatment.

**Fig. 1.** Individual data on proteinuria at baseline and after 6 months of treatment. *P*=0.003 in the ID/II genotype group.

<table>
<thead>
<tr>
<th>Proteinuria, mg/kg/day</th>
<th>DD (n=9)</th>
<th>ID (n=7)/II (n=1)</th>
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<tbody>
<tr>
<td>Baseline 6 months</td>
<td>Baseline 6 months</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>65 (0.7)</td>
<td>65 (0.8)*</td>
</tr>
<tr>
<td>Range</td>
<td>7–142</td>
<td>19–116</td>
</tr>
<tr>
<td>GFR, ml/min/1.73 m²</td>
<td>90 (0.4)</td>
<td>86 (0.4)</td>
</tr>
<tr>
<td>Blood pressure, mmHg</td>
<td>141</td>
<td>145</td>
</tr>
<tr>
<td>Systolic</td>
<td>129</td>
<td>130</td>
</tr>
<tr>
<td>Diastolic</td>
<td>93</td>
<td>92</td>
</tr>
<tr>
<td>Mean</td>
<td>108</td>
<td>108</td>
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</tbody>
</table>

SE (standard error) in parentheses. *P*=0.003.

Blood pressures decreased significantly (*P*<0.05) in the DD and ID/II genotype groups.

Is dialysis indicated immediately after administration of iodinated contrast agents in patients on haemodialysis?

Sir,

Contrast media are removed by glomerular filtration [1] and are, therefore, retained in patients on dialysis. Since it is known that they may be efficiently removed by haemodialysis [2,3] many physicians [2] advocate immediate dialysis after a procedure involving contrast material on the grounds that the contrast material may precipitate potentially dangerous haemodynamic or cardiovascular complications. Currently no data are available to confirm or rebut this proposal. This study was thus undertaken to evaluate the necessity of immediate dialysis after intravascular injection of contrast media in haemodialysed-patients.

We studied eight patients (7 men, 1 woman aged 56±13 years) being treated with haemodialysis (HD) and who were undergoing diagnostic procedures that required intravascular contrast material. All patients were in-patients maintained on a routine haemodialysis schedule of three times per week. Baseline blood pressure, ECG, total serum protein level and osmolality, extracellular fluid volume, or body weight occurred after injection of contrast material. All patients were in-patients undergoing diagnostic procedures that required intravascular contrast material. All patients were in-patients maintained on a routine haemodialysis schedule of three times per week. Baseline blood pressure, ECG, total serum protein level and osmolality, average weight gain between two successive sessions of dialysis, and clinical assessment of extracellular overhydration (oedema of lower extremities, cardiac arrhythmia and pulmonary oedema) were recorded.

Two patients had CT, two had cardiac catheterization, three had angiography of the peripheral vasculature, and one patient underwent a dialysis fistulogram. The patients received 50–300 ml of iobitridol (Xenetix™) 12–48 h before their usual HD session.

No significant changes in blood pressure, ECG, total protein level or osmolality, extracellular fluid volume, or body weight occurred after injection of contrast material. None of the patients who had been stable on dialysis and not overhydrated presented clinical features that necessitated emergency dialysis.

We conclude that Xenetix™, a new non-ionic low osmolar contrast media [4], can be given safely to patients with end-stage renal disease who are being maintained on haemodialysis. Immediate post-procedural dialysis is unwarranted as a routine practice in these patients.
Table 1.

<table>
<thead>
<tr>
<th></th>
<th>Serum protein level (g/l)</th>
<th>Serum osmolality (mOsm/l)</th>
<th>Arterial blood pressure (mmHg)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before contrast</td>
<td>66.1 ± 5</td>
<td>292.3 ± 3</td>
<td>126 ± 3 77 ± 2</td>
</tr>
<tr>
<td>Before HD</td>
<td>62.6 ± 4</td>
<td>303 ± 4</td>
<td>138 ± 4 79 ± 2</td>
</tr>
</tbody>
</table>


**Is there a role for parathormone in the pathogenesis of colonic angiodysplasia?**

Sir,

Angiodysplasia (AD) is a well-defined source of GI bleeding. It is described as a degenerative lesion consisting of dilated, distorted, thin-walled vessels lined by vascular endothelium. This vascular ectasia predominantly affects the caecum and right side of the colon and usually reveals itself by rectal bleeding, either as haemorrhage or as anemia. AD has been related to some conditions, such as old age, aortic stenosis, Olsr-Weber-Rendu syndrome, von Willebrand’s disease and CRF. The frequent association of AD and CRF is well recognized [1–4]. However, the pathomechanism involved is unclear. Several hypotheses have been proposed. It has been suggested that an abnormal calcium-phosphorus metabolism could trigger vascular degeneration and consequent AD in CRF. We recorded all cases of intestinal AD in patients with CRF (group A) which occurred in our Hospital between January 1986 and February 1997, diabetic patients being excluded. Parameters of calcium-phosphorus metabolism of these nine patients were compared with those of a case-matched cohort of patients with CRF but without AD (group B). The results are shown in Table 1.

Classically, it has been said that angiodysplasic lesions are the result of intermittent, chronic, low-grade obstruction of the submucosal veins. Progressive tortuosity and dilatation of capillaries leading to an arteriovenous communication could be the final result of repeated obstruction of the veins over many years. An increase in the intraluminal pressure due to muscular contraction and distension would result in increased congestion, finally leading to bleeding. To explain the increasing incidence of AD in patients with CRF several factors must be considered i.e. the increased age of this population, the not infrequently associated cardiovascular disease, the concomitant calcium-phosphorus metabolism disorders with a high incidence of vascular calcifications or the aluminum-hydroxide induced constipation [1]. We admit, however, that epidemiological observations to prove these associations is not available.

As shown in Table 1, we found that intact parathormone (i-PTH) levels were higher in patients with AD, although there was no difference in calcium or phosphorus concentrations. The number of patients is not sufficient to permit definitive conclusions but one could speculate that a direct action of i-PTH on the vascular wall is involved. Further studies will be necessary to define potential pathogenic actions of i-PTH in the genesis of AD.

<table>
<thead>
<tr>
<th></th>
<th>Group A</th>
<th>Group B</th>
</tr>
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<tbody>
<tr>
<td>Age (years)</td>
<td>63.7 (46–82)</td>
<td>62.3 (36–83)</td>
</tr>
<tr>
<td>Gender (M/F)</td>
<td>7/2</td>
<td>6/3</td>
</tr>
<tr>
<td>Time (months) in dialysis</td>
<td>31.3 (24–36)</td>
<td>26.7 (20–30)</td>
</tr>
<tr>
<td>Serum creat (µmol/l) in pre-haemodialysis patients</td>
<td>486.2 (150.3–1237.6)</td>
<td>459.7 (176.8–795.6)</td>
</tr>
<tr>
<td>Ca (mmol/l)</td>
<td>2.2 (1.95–2.5)</td>
<td>2.42 (2.02–2.87)</td>
</tr>
<tr>
<td>P (mmol/l)</td>
<td>1.84 (0.87–2.36)</td>
<td>1.74 (1.13–2.42)</td>
</tr>
<tr>
<td>Ca × P</td>
<td>4.05 (1.69–5.9)</td>
<td>4.21 (2.28–6.94)</td>
</tr>
<tr>
<td>Alk. Phosph. (µ/l)</td>
<td>281.5 (81–646)</td>
<td>251.3 (119–727)</td>
</tr>
<tr>
<td>i-PTH (µg/ml)</td>
<td>414.8 (57–1281)</td>
<td>237.4 (33–529)</td>
</tr>
</tbody>
</table>

Experience with i.v. iron chondroitin-sulphate colloid in Japanese haemodialysis patients

Sir,

Resistance to recombinant human erythropoetin (r-huEPO) therapy in haemodialysis patients is due mainly to insufficient iron supplementation [1]. Recent studies have suggested that oral iron supplementation may be insufficient for supporting r-huEPO therapy and aggressive supplementation by i.v. iron should be considered [2,3]. For the safe and effective use of i.v. iron, in this context, several i.v. iron preparations and their dosage applied have been reported [2–5]. I would like to add an experience with i.v. iron chondroitin-sulphate colloid which has long been used in Japan since 1967.

The charts for 5 years (January 1, 1991–December 31, 1995) were screened for evaluating adverse effects. Also, 26 haemodialysis patients whose dose of r-huEPO and dialysis schedules have not been changed at least 2 months before and throughout the treatment with i.v. iron were selected for analysis. The 26 patients' age was 55.4 ± 11.1 (M ± SD) years old; 12 males and 14 females. The duration of haemodialysis was 4.2 ± 3.3 years. The original diseases were chronic glomerulonephritis in 16 patients, diabetic nephropathy in six and chronic pyelonephritis in four. All the patients had no infectious diseases or no other active complications. Haemodialysis was done three times a week, 5 h per session with standard dialysers. Even in patients who have high serum ferritin (>100 ng/ml) i.v. iron supplementation was indicated when the decline of their haematocrit levels had been observed along with a relative decrease in serum ferritin. When serum ferritin determined quarterly exceeded 500 ng/ml i.v. iron was discontinued. One ampoule (40 mg) of iron chondroitin-sulfate colloid (Blutal®, Dainippon Pharmaceutical Co. Ltd, Osaka, Japan) was given as a slow-bolus injection in the venous chamber of the efferent line of the extracorporeal circuit at the end of haemodialysis session once a week for 4 weeks (the continuation of i.v. iron was reconsidered every 4 weeks). When the haematocrit values reached 30% or increased by at least +3% compared to baseline values at the time of initiating iron supplementation, the treatment was judged as ‘effective’ in a retrospective fashion. Chi-square test and Student paired t-test were applied for statistical analysis. Differences were considered statistically significant if the P-values were less than 0.05.

For the 5 years screened no acute or chronic adverse effects of i.v. iron chondroitin-sulphate colloid were found apart from a patient with transient swelling of submandibular lymphnode. Total dose of i.v. iron given to the 26 patients was 710 ± 218 mg/17.8 ± 5.5 weeks (M ± SD). The dose of r-huEPO administered before and during i.v. iron supplementation was 2910 ± 1530 IU/week. All the indices, haematocrit, serum ferritin, serum iron, TIBC, transferrin saturation and MCV, were significantly changed by i.v. iron supplementation (Table 1). The i.v. iron supplementation was effective in 22 of 26 patients (85%). There was no significant difference in effective rate between patients with low-serum ferritin (<100 ng/ml) and patients with high-serum ferritin (>100 ng/ml), 13 of 16 patients (81%) and 9 of 10 patients (90%), respectively. Further, six of seven patients who have both serum ferritin of more than 100 ng/ml and transferrin saturation of more than 16% indicative of repleted iron status were judged to be ‘effective’.

Recently it has been considered that oral iron may be insufficient for haemodialysis patients on r-huEPO therapy [2,3] and i.v. iron can be effectively used [2–5] despite the potential risk of anaphylactic reaction [3,4]. Allegra et al. [2] reported that low-dose of 20 mg i.v. iron gluconate at end of each dialytic session (that is 60 mg per week) was safe and effective. Zanen et al. [4] showed that a rapid infusion of i.v. ferric gluconate (Ferrlich®) may cause free-iron toxicity by ‘oversaturation’ of transferrin and the slow-continuous infusion during a longer period (4 h of the full extent of dialysis) at a lower dose (62.5 mg) eliminates the risk. More recently Sunder-Plassmann and Hörl [5] demonstrated that low dose of 10–40 mg i.v. iron saccharate (Ferrivin®), given over a period of 1 min after the end of the dialysis session, was a safe therapy without risk of ‘oversaturation’ of transferrin. In the present study, bolus i.v. infusions of iron chondroitin-sulfate colloid had no acute adverse effects of allergic reaction and iron toxicity. The present study also suggests that once-a-week, low-dose of i.v. iron is sufficient iron supplementation in haemodialysis patients on r-huEPO therapy and high values of serum ferritin do not necessarily indicate unresponsiveness to i.v. iron. A ‘low’ (one time per week or 2 weeks), ‘low-dose’ (less than 40 mg) and ‘steady’ (i.v.) iron supplementation (by iron chondroitin-sulphate colloid) may be a safely-feasible ultimate way to rule out iron deficiency in haemodialysis patients with anaemia resistant to r-huEPO therapy as we have no definitely reliable indices for iron deficiency so far.

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Sir,

It was interesting to read the comments of Drs M. Sobh and A. Refaie [1] on colchicine toxicity in patients with chronic renal failure [2] and the reply by Montseny et al. [1], which prompted us to share our view on the use of this drug.

We believe that the neuromuscular complications of colchicine although infrequent [3-5], are greater in patients with renal insufficiency [3] and in renal transplant recipients on cyclosporin [4,5]. We agree that colchicine may safely be used in renal failure. We have used the drug frequently to treat symptomatic gout in chronic renal failure and following renal transplantation, without adverse effects in all but one patient [5]. This renal transplant recipient developed proximal muscle weakness within 2 weeks of starting colchicine. Details of this patient have been published elsewhere [5].

We feel it is important and appropriate to consider the potential complications of colchicine therapy in patients with end-stage renal disease or renal transplant recipients on cyclosporin. Monitoring patients carefully when colchicine is used either alone or together with cyclosporin seems reasonable to prevent the infrequently occurring neuromuscular problems encountered in some patients [2,5].

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Colchicine controversy