compared with placebo, to improve RBC survival. The RBCs [7].

improve the visco-elastic properties of non-uraemic human impaired rheological and metabolic properties of erythro-
in maintenance HD patients [1]. This conclusion is consistent beneficial effect of LC supplements on anaemia control and after the advent of erythropoietin therapy shows a patients seems to alleviate their anaemic condition. A recent has been found to be impaired in uraemia [4] and to correlate compromise tissue oxygenation. Erythrocyte deformability survival in the blood stream [3]. Indeed, RBCs must survive between the two groups in adverse event rate, C-reactive proteins and serum ferritin.

The biophysical properties of the erythrocyte membrane and its cytoskeletal network are fundamental for RBC survival in the blood stream [3]. Indeed, RBCs must survive a variety of chemical and physical insults during their lifespan, and the loss of their elastic properties may severely compromise tissue oxygenation. Erythrocyte deformability has been found to be impaired in uraemia [4] and to correlate with shortened RBC survival time [5]. LC treatment of HD patients seems to alleviate their anaemic condition. A recent meta-analysis of the randomized LC trials performed before and after the advent of erythropoietin therapy shows a beneficial effect of LC supplements on anaemia control in maintenance HD patients [1]. This conclusion is consistent with the concept that LC may favourably affect the impaired rheological and metabolic properties of erythrocytes in HD patients [6]. Furthermore, LC has been shown to improve the visco-elastic properties of non-uraemic human RBCs [7].

Our present data show a clear tendency of LC, compared with placebo, to improve RBC survival. The statistical analysis performed on T1/2 did not reach a P-value <0.05, reaching a borderline value of 0.058. However, due to the higher variability detected in the study than that assumed on sample size calculation, the study was under powered. Furthermore, relevant haematological values increased from baseline to week 24 in the LC group, compared with a small decline in the placebo group. This was despite a lower dose of erythropoietin in the LC group, as previously reported [8]. More direct experimental evidence for the beneficial effect of LC on RBC survival comes from an RBC conservation study [9]. In a paired cross-over study, the addition of LC to the preservation solution of packed RBCs reduced haemolysis during storage and increased subsequent in vivo recovery and survival of 51Cr-labelled RBCs. In this study, it was also shown that the membrane phospholipid fatty acid turnover, a key process in the repair of oxidatively damaged phospholipids, was favourably affected by the expansion of the intra-RBC LC pool. Additional evidence that this may occur in RBCs of HD patients was provided by de los Reyes et al. [10].

We report the first randomized controlled trial of the effects of LC on erythrocyte survival in HD patients. There was a strong trend towards improved RBC survival in the treated group (P = 0.058), and this mechanism might explain in part the reported benefit of LC supplements on anaemia control in HD patients.

Conflict of interest statement. A. Arduini is currently the Director of the Research and Development Department of Iperboreal Pharma Srl.

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The pleiotropic effect of statins in haemodialysis patients is not the consequence of an inhibition of LDL oxidation by myeloperoxidase

Sir,

For at least 20 years, myeloperoxidase (MPO) has been studied as a marker of oxidative stress during haemodialysis (HD) [1]. Free MPO concentration increases during HD,
which is associated with an increased risk of coronary artery disease [2,3]. In a recent article, statins demonstrated their ability to downregulate the MPO gene expression in human macrophages, which could explain their pleiotropic protection against coronary artery disease [4]. Previous studies also demonstrated that atorvastatin therapy (12 weeks in human) decreased the markers of MPO oxidation [5], while fluvastatin reduced the chlorinating activity of MPO in a rat model [6]. These peculiar results led some authors to investigate the effects of a statin treatment on the MPO activity in HD patients. They showed that the drugs significantly decreased markers of MPO activity, both in diabetic and non-diabetic HD subjects [7].

In our laboratories, we are particularly concerned about the key role of circulating MPO in the development of atherosclerosis. One of the most deleterious mechanisms provided by MPO is probably the oxidative modification of low-density lipoproteins (LDL); MPO binds to LDL [8] and predominantly oxidizes apolipoprotein B-100 [9]. An ELISA test that specifically quantifies the MPO-modified LDL (Mox-LDL) was used to assess the production of Mox-LDL [10,11]. First, we studied the inhibition of the LDL oxidation in the presence of several statin concentrations. Second, we investigated the possible interaction of statins with MPO, using a model based on the accumulation of compound II as previously described [12]. Figure 1 shows that simvastatin and lovastatin, at therapeutic concentrations, were unable to inhibit LDL oxidation. Indeed, simvastatin significantly inhibited LDL oxidation at concentrations over 300 nM. Furthermore, we did not observe any accumulation of the compound II, which indicates the absence of interference of statins with the synthesis of hypochlorous acid.

Our results suggest that LDL binds to MPO and that their presence close to the catalytic site of the enzyme decreases the inhibiting effect of large molecules such as statins [11]. Although fluvastatin undoubtedly scavenges HOCl [6], probably as a consequence of a double bond in its structure, it has no significant inhibiting effect on LDL oxidation by MPO. Our findings suggest that statins do not decrease the risk of coronary artery disease by inhibition of LDL oxidation by MPO, in contrast with the other effects of statins such as the downregulation of MPO gene expression [4], the decrease of oxidation markers [5] and the decrease of markers of MPO activity in HD patients [7]. It could be of great interest to compare these results with the levels of free MPO and Mox-LDL in HD patients treated or not by statins.

Fig. 1. Mox-LDL concentrations (in %) in the presence of increasing amounts of lovastatine (lovastat) and simvastatin (simvastat). Native LDL has to be considered equal to 0%, Mox-LDL equal to 100% and catalase (400 U/ml), and the absence of hydrogen peroxide or the absence of MPO as negative controls. Statistics: ANOVA, *P<0.05 vs LDLox, Dunnett’s post hoc test, results are the mean±SD of four independent measurements.


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Hand-assisted retroperitoneoscopic living donor nephrectomy: first UK experience

Sir,

Hand-assisted retroperitoneoscopic (HAR) approach is considered a safer procedure than open and conventional laparoscopic live donor nephrectomy [1,2]. This approach enables immediate control of bleeding that minimizes the possibility of conversion to open surgery. The retroperitoneal approach also reduces the risk of intestinal injury and postoperative intestinal complications, with shorter hospital stay and convalescence [3]. We assume that the introduction of this approach may increase the number of living donor kidney transplants, as it has the attraction of fewer postoperative morbidity and economic disincentives for potential donors. To our knowledge, this is the first HAR live donor nephrectomy experience in UK renal transplant centres. We report our experience of the first 12 consecutive live donor nephrectomies using HAR approach.

From February 2005 to October 2005, 12 live donor left nephrectomy procedures were performed in our centre using the HAR approach. The procedure was performed according to Wadström et al. [2], with minor modifications.

The donors included six men and six women with a mean age of 42.5 years (range 31–58). Their mean body mass index was 27.5 (22–35 kg/m²). One donor (the first one) had a double vena cava with each renal vein draining into the epilateral IVC division, making the left renal vein short. Five donors had two renal arteries. The mean operating time was 140 (115–190) min. The mean warm ischaemic time was perhaps, the guideline should state that the dialysis dose should not be increased simply to achieve a higher Kt/Vurea if the weekly Kt/Vurea is ≥1.7 (evidence level A).

Any recommendation regarding a minimum target Kt/Vurea is limited by an absence of evidence supporting one minimum Kt/V over another in the randomized clinical trials performed to date. The EBPG should acknowledge this limitation and this should stimulate support for further trials to address this.


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