Serum Apolipoprotein Profile of Renal-Transplant Patients

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Dear Sir,

It has been reported that apolipoproteins (apo) are more sensitive markers than lipids in detecting discrete lipid transport abnormalities in patients with chronic renal failure [1]. However, little is known about the apo-protein profile of renal-transplant patients [2, 3]. In order to examine the changes in serum apoprotein levels occurring after renal transplantation and to determine the clinical variables leading to them, we prospectively measured serum lipids and apo AI, B, CII, CIII and E in a sample of 60 nondiabetic, renal-transplant recipients treated with cyclosporin and prednisone prior to and after renal transplantation and in 60 age- and sex-matched healthy controls. The study group was made up of 41 males and 19 females; mean age 44 ± 11 years, body mass index 23.8 ± 1.6 , time since transplantation 36 ± 12 months, mean cyclosporin dose 4 ± 1.3 mg/kg/day, mean steroid dose 0.1 ± 0.01 mg/kg/day, serum creatinine 158 ± 20 mmol/l, glomerular filtration rate 55 ± 11.5 ml/min/1.7 m², proteinuria 0.24 g/day (0.1-3 g/day).

The results, summarized in table 1, indicate that posttransplantation changes in serum lipids were comparable to those described in most studies [4-6]. Changes in serum apoproteins were also similar to those described previously by other authors [2, 4]. When compared to healthy controls, transplanted patients showed higher levels of apo CII ($p < 0.05$), CIII ($p < 0.05$) and B ($p < 0.01$). Twelve out of 28 (42.8%) normolipidemic (cholesterol < 5 mmol/l, triglycerides < 1.7 mmol/l) transplanted patients showed apo CIII levels above 1 SD (7 mg/dl) and 7 (25%) above 2 SD (10 mg/dl) of the control group. The apo CIII/AI ratio was significantly increased (2 SD of the control group) in 14/28 (50%) of the normolipidemic patients. Six out of 28 normolipidemic patients had apo B levels above 2 SD (110 mg/dl) and 4 (14.2%) above 2 SD (130 mg/dl) of the control group.

Glomerular filtration rate was positively correlated with apo AI (Pearson correlation coefficient $r = 0.5$, $p < 0.01$) and inversely cor-

Table 1. Lipid (mmol/l) and apoprotein (mg/dl) levels in control and study groups before and after transplantation

Means $\pm$ SD. HDL = High-density lipoprotein; LDL = low-density lipoprotein; VLDL = very-low-density lipoprotein; C = cholesterol; TG = triglyceride. p: Comparison between pretransplantation and posttransplantation values (Student's paired t test).

tein disturbances without accompanying lipid abnormalities. For this reason, as occurs in predialysis and dialysis patients [1], apoproteins may be more sensitive indicators than lipids both for detecting abnormalities in lipid metabolism and for the evaluation of athero-genic risk in renal-transplanted patients.

related with apo CII ($r = -0.60$, $p < 0.01$) and apo CIII ($r = -0.7$, $p < 0.01$). Apo B was positively correlated with proteinuria ($r = 0.56$, $p < 0.01$), diuretic dose ($r = 0.3$, $p < 0.05$) and pretransplantation apo B levels ($r = 0.4$, $p < 0.01$). Our findings indicate that renal-transplanted patients may suffer from apolipopro-

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