Erythrocyte Sodium Lithium Countertransport in Renal Transplant Recipients With Mycophenolate Mofetil and Low-Dose Cyclosporine

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ABSTRACT
Hypertension, a common complication after renal transplantation, has many potential etiologies. Erythrocyte sodium lithium countertransport (Na/LiCT) is a sensitive membrane protein that has been observed to be abnormal in several hypertension-related diseases. We have shown that the kinetics of Na/LiCT were abnormal in renal transplant recipients treated with usual dose of cyclosporine (CsA). We postulated that CsA might be a cause of post–renal transplantation hypertension. There is evidence showing that the severity of CsA nephrotoxicity is dependent on the dose. Mycophenolate mofetil (MMF) may allow CsA dose reduction without increasing the risk of rejection. We studied the impact of CsA dose reduction in association with MMF on the kinetics of erythrocyte Na/LiCT in renal transplants. In 15 renal allograft recipients, 2 g/d MMF were introduced and the CsA dose reduced to reach whole-blood levels between 70 and 100 ng/mL within 1 month. CsA doses and levels, renal function parameters, blood pressure, and the kinetics of Na/LiCT were evaluated before and 6 months after CsA dose reduction. Overall, renal transplant recipients with usual doses of CsA showed a lower Km with a higher Vmax/Km ratio for erythrocyte Na/LiCT than normal controls (Km, 40 ± 4 vs 74 ± 11; P < .05; Vmax/Km, 10.2 ± 1.7 vs 6.1 ± 0.9; P < .05). After 6 months of CsA dose reduction, the Km and Vmax/Km of Na/LiCT were similar to those of normal controls (Km, 66 ± 8 vs 74 ± 11; P > .05; Vmax/Km, 5.7 ± 1.2 vs 6.1 ± 0.9; P > .05). These results demonstrate that reduction of CsA dose in combination with MMF may improve the kinetics of Na/LiCT and lessen the long-term side effects of CsA without increasing the risk of rejection.

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