

## OBSERVATIONS

## Renal Transplantation Reversed Intractable Hypotension in a Diabetic Patient

A small fraction of hemodialysis patients have chronic hypotension (1). Autonomic dysfunction, a product of diabetes and uremia, may be the most important cause that contributes to hypotension in dialysis patients (1). Unfortunately, there is no specific or effective therapy for them.

A 59-year-old female with hypertension and type 2 diabetes for >16 years received hemodialysis treatment 6 years ago, due to diabetic nephropathy. Chronic hypotension (80–100/50–60 mmHg) developed, which resulted in limited daily activity and inadequate dialysis for the past 2 years. Her cardiac performance and nutrition status were fair. Aldosterone and renin levels were high (1,307 and 67.5 pg/ml, respectively), and adjusting dialysis prescriptions and medical therapy with a specific  $\alpha$ -agonist and mineralocorticoid analog did not ameliorate the dilemma.

To aid the situation, her 27-year-old

healthy son decided to donate a kidney to her. Thus, she was placed on immunosuppressive therapy with tacrolimus, mycophenolate mofetil, and steroids. Low doses of dopamine were infused for 5 days after surgery. Her blood pressure normalized (120–140/60–80 mmHg) on the first day after the transplantation. For posttransplant acute tubular necrosis, the patient was supported by hemodialysis for 3 weeks.

Two months later, her creatinine level dropped to 1.0 mg/dl, her daily urinary volume rose to 2,000 ml, and her blood pressure remained normotensive. Aldosterone (588 pg/ml) and renin (44.2 pg/ml) prominently fell from the pretransplant levels.

Studies of heart rate variability reveal that renal transplantation improves uremic autonomic dysfunction (2), and rare reports describe changes of blood pressure after renal transplantation in dialysis patients with chronic hypotension. Renal transplantation failed to normalize the blood pressure of patients with Bartter's syndrome and Gitelman's syndrome (3). Blunted pressor responses and increased production of vasodilator agents were reported to be involved in the pathophysiology of chronic hypotension in dialysis patients (1,4), and we speculated that the grafted kidney might modulate the pressor response or the vasodilator production. More studies are needed to clarify

the mechanism. In conclusion, renal transplantation might be the final solution for dialysis patients with chronic hypotension.

CHIAO-YIN SUN, MD  
MAI-SZU WU, MD

From the Division of Nephrology, School of Medicine, Chang Gung University, Chang Gung Memorial Hospital, Keelung, Taiwan.

Address correspondence to Mai-Szu Wu, MD, Division of Nephrology, Chang Gung Memorial Hospital 222, Mai-Chin Road, Keelung, Taiwan. E-mail: maxwu1@adm.cgmh.org.tw.

DOI: 10.2337/dc07-0074

© 2007 by the American Diabetes Association.

### References

1. Cases A, Coll E: Chronic hypotension in the dialysis patient. *J Nephrol* 15:331–335, 2002
2. Yildiz A, Sever MS, Demirel S, Akkaya V, Turk S, Turkmen A, Ecder T, Ark E: Improvement of uremic autonomic dysfunction after renal transplantation: a heart rate variability study. *Nephron* 80:57–60, 1998
3. Calo LA, Marchini F, Davis PA, Rigotti P, Pagnin E, Semplicini A: Kidney transplant in Gitelman's syndrome: report of the first case. *J Nephrol* 16:144–147, 2003
4. Cases A, Esforzado N, Lario S, Vera M, Lopez-Pedret J, Rivera-Fillat F, Jimenez W: Increased plasma adrenomedullin levels in hemodialysis patients with sustained hypotension. *Kidney Int* 57:664–670, 2000