Successful Long-Term Peritoneal Dialysis in Combination with Once-Weekly Hemodialysis: A Case Report

KEY WORDS: Combination therapy; hemodialysis.

Editor:

It is uncommon to manage a patient on peritoneal dialysis (PD) for 20 years (1). Here, we report a patient who was successfully treated on PD for 20 years, including combination therapy with once-weekly hemodialysis (HD) during the final 9 years.

CASE DESCRIPTION

A 53-year-old man with end-stage renal failure because of chronic glomerulonephritis started PD in 1989. Eleven years later, he was transferred to combination therapy (6 days of PD and one 4-hour session of HD weekly), because he became anuric and demonstrated overhydration. His PD regimen at that time was 12 L 1.5% acetate-based low-pH dialysis solution daily, using continuous cycling PD.

He continued on the same combination dialysis regimen (PD+HD) until 2009. His dialysate-to-plasma creatinine ratio at 4 hours remained stable at between 0.44 and 0.51, and his daily ultrafiltration volume by PD always exceeded 1 L. He demonstrated mild left ventricular hypertrophy, but he had never experienced peritonitis or symptomatic cardiovascular complications.

In August 2009, this patient developed his first episode of peritonitis with *Candida albicans*. In spite of Tenckhoff catheter removal and antifungal therapy, the peritonitis persisted, and the patient died 6 months

later. A peritoneal biopsy at catheter removal showed fibrous thickening of the peritoneum without signs of encapsulating peritoneal sclerosis.

DISCUSSION

Our patient was treated successfully on PD for 20 years, without worsening of peritoneal function. An earlier study has demonstrated that patients are able to survive a long time on PD when they are nondiabetic and have few comorbid conditions (2). Those findings are consistent with our patient's situation. Combination PD+HD might have played a role in his favorable result. Combination therapy has been used as an alternative to an increase in the dose of dialysis in PD patients with declining residual renal function (3).

In 2009, 19% of Japanese patients treated with PD alone had a dialysis vintage of more than 5 years (4). About one fifth of PD patients are treated with PD+HD, and the ratio of combination therapy with HD increases with prolonged PD duration (4). Combined therapy improves volume status and solute removal (3). We recently reported an additional beneficial effect on left ventricular hypertrophy (5). In addition, PD+HD may also permit a "PD holiday" with peritoneal rest, which can improve quality of life and might be effective in preserving peritoneal function and preventing encapsulating peritoneal sclerosis (3). In fact, an analysis demonstrated improvements in peritoneal function after a switch to PD+HD from daily PD (6).

Combination therapy may permit the safe prolongation of PD after loss of residual renal function, although further studies are necessary to clarify the issue.

DISCLOSURES

The authors have no financial conflicts of interest to declare.

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