**Peritoneal Dialysis Combined with
Extracorporeal Ultrafiltration in
Refractory Heart Failure:
A Case Report**

KEY WORDS: Combination therapy; heart failure; hemodialysis; intradialytic hypotension; residual renal function.

Editor:

We report a patient who was successfully treated with peritoneal dialysis (PD) combined with the isolated extracorporeal ultrafiltration method (ECUM).

A 75-year-old man with diabetic renal failure was referred to our hospital for PD start. The patient had 3-vessel coronary artery disease ineligible for revascularization. His left ventricular ejection fraction was 30%, and he had systemic edema and pulmonary congestion. At the start of PD, daily urine output was 400 mL. Dialysate-to-plasma ratio of creatinine at 4 hours was elevated at 0.88.

Using continuous cycling PD with 2 L icodextrin and 10 L 2.5% glucose dialysate, daily PD ultrafiltration was limited to as little as 400 mL, which might have been a result of elevated peritoneal permeability and peritoneal edema (1). The patient's Kt/V was 1.73, but PD could not resolve his overhydration. We added hemodialysis (HD) using arteriovenous fistula, but during HD sessions, the patient suffered from repeated hypotension with angina. We therefore administered ECUM, using a low-surface-area dialyzer (1.3 m²) with low blood flow (80 mL/min).

During ECUM, the patient's hemodynamics became relatively stable, and angina appeared less frequently. In each ECUM session, 2 L–2.5 L of fluid was removed. By receiving PD combined with ECUM, the patient achieved a reduction of 10 kg in excess fluid. He continued to be treated with continuous cycling PD and once- or twice-weekly ECUM for 3 years until he died of myocardial infarction. He maintained a renal Kt/V of 0.5 during that period.

Intradialytic hypotension is a crucial problem in HD patients. Compared with regular HD, ECUM may maintain better plasma osmolality and blood pressure (2). In this case, solute removal was adequate with PD and residual renal function, and ECUM complemented the ultrafiltration failure in PD. The use of PD reduced the frequency and intensity of ECUM. The two dialysis modalities mutually compensated for the other's disadvantages.

Combination therapy with PD and HD is typically used for patients with decreased residual renal function, but cardiovascular instability is another potential indication (3). This type of combined therapy might be a therapeutic option for high-transport patients with hemodynamically unstable severe heart failure.

DISCLOSURES

The authors declare that they have no relevant financial interests.

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