Intractable Intradialytic Hypotension with Ischemic Retinopathy

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Dear Editor,

The incidence of intradialytic hypotension (IDH) is about 25% in hemodialysis (HD) patients [1]. IDH is associated with hypovolemia and patient- and dialysis-specific factors. Rapid ultrafiltration changes serum osmolarity, acid–base balance, and electrolyte compositions. Most of the HD patients are hemodynamically unstable due to cardiac disease and impairment of vascular tone. Bilateral vision loss in HD patients was first reported in 1986 [2]. However, hypotension-induced blindness in HD patients remains poorly recognized by renal physicians [3–5]. Herein, we report a chronic hypotension treatment process for a patient who experienced temporary vision loss and became blind.

A 33-year-old man was admitted due to decreased vision and chronic hypotension for 3 years. He started peritoneal dialysis due to polycystic kidney disease 6 years earlier. He underwent both nephrectomy

due to untreated hematuria 3 years earlier, and then changed the dialysis modality to HD. He was diagnosed with dilated cardiomyopathy 6 months ago.

His blood pressure (BP) was 70/60 mm Hg, pulse rate 100 beats per minute, and respiratory rate 16 breaths per minute. He had mild pitting edema on both foot. His height and weight were 178 cm and 103.5 kg, respectively. He underwent HD 3 times a week with 36°C, Na 138 mEq dialysate. The mean ultrafiltration rate was 3.5 kg and average Kt/V was 1.26. His pre- and post-HD BP were 55/29 and 54/23 mm Hg, respectively. The laboratory evaluation revealed the following: hemoglobin 11.9 g/dl, creatinine 9.7 mg/dl, plasma c-reactive protein 0.96 mg/dl, glucose 295 mg/dl, TSH 2.48 pg/ml, parathyroid hormone 148.10 pg/ml, brain natriuretic peptide 10 pg/ml, and hemoglobin A1c 5.4%. No other active lesion was seen on the chest radio-

graph. Rapid ACTH stimulation test was negative. Echocardiography showed diastolic heart failure and dilated cardiomyopathy. Due to intolerance, neurologic study for excluding cardiac autonomic neuropathy was not done. On ophthalmologic examination, fundoscopy showed bilateral cotton wool spot and pale optic disc (fig. 1). Optic coherence tomography showed macular edema due to inner retina ischemia, and ischemic retinopathy was diagnosed.

The patient was administered intravenous vasopressin 0.3 mU/kg/min. Pre- and post-HD BP were 86/35, and 99/37 mm Hg, respectively. During dialysis, extracellular volume and plasma osmolality decreases due to fluid removal, and there is a fall of endogenous vasopressin level [6, 7]. Inadequate secretion of vasopressin during fluid removal may contribute to cardiovascular instability, and administration of exoge-

Fig. 1. Fundoscopy shows bilateral cotton wool spot and pale optic disc.

nous hormone, by supporting arterial pressure, may facilitate volume removal [8, 9].

Bansal et al. [5] reviewed hypotension-induced blindness in 20 HD patients. Their treatment included intervention of BP and steroid. However, their prognosis was poor.

In this case, contractility reduction due to dilated cardiomyopathy and cardiac autonomic neuropathy could probably influ-

ence the lowering of BP and blindness. In addition, adrenal insufficiency was ruled out with normal hormone levels. Subsequently, exogenous vasopressin was considered to maintain BP after the failure of cooling dialysis, minimal ultrafiltration, and midodrine.

We presented a rare case of intractable IDH with ischemic retinopathy. Our patient maintained normotension with vaso-

pressin, but his vision did not improve. We advised careful monitoring of BP and intensive treatment to avoid hypotensive episodes.

Disclosure Statement

All the authors have declared no competing interest.

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