CONCLUSIONS: This study found that volume status-independent association addition to appropriate volume control.

RESULTS: A total of 136 patients were divided into three groups: 82 (60.3%) with Δ systolic BP ≤ 20 mmHg, 21 (15.4%) with Δ systolic BP ≤ 20 mmHg, and 33 (24.3%) with Δ systolic BP > 20 mmHg, and were followed for a median of 34 (19, 64) months. Patients whose Δ systolic BP > 10 mmHg had higher pre- and post-dialysis ECW/TBW than the others (P = 0.007 and 0.001). Cardiovascular events more frequently occurred in patients with Δ systolic BP ≤ 20 mmHg or > 10 mmHg than those with Δ systolic BP ≤ 20 to 10 mmHg (HR 2.3 and 3.0; P = 0.0062 and 0.006), and these associations persisted even after the adjustment of pre-dialysis ECW/TBW (P = 0.043 and 0.014). Moreover, Δ systolic BP > 10 mmHg was associated with increased cardiovascular mortality independent of pre-dialysis ECW/TBW (P = 0.025). We did not find the association between Δ systolic BP ≤ 20 mmHg and cardiovascular mortality.

CONCLUSIONS: This study found that volume status-independent association between rise in systolic BP during hemodialysis and adverse cardiovascular outcomes. On the other hand, large decline in systolic BP was associated with cardiovascular events independent of volume status, but was not with cardiovascular mortality. Given these findings, other factors related to changes in BP during hemodialysis, such as autonomic or endothelial dysfunction, are investigated to manage these complications, in addition to appropriate volume control.