Blood Pressure Measurement and Treatment in Hemodialysis Patients

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Two issues have plagued the management of hypertension in hemodialysis patients—how to make a diagnosis and then how to control it without causing increased intradialytic symptoms attributable to hypotension. It is now well recognized that blood pressures obtained in the dialysis unit before and after dialysis are inaccurate, imprecise and biased estimates of interdialytic ambulatory blood pressure recording. Self-measured home blood pressures obtained 2-3 times daily over 4 days after a mid-week dialysis are much better in predicting interdialytic ambulatory blood pressure, target organ damage and all-cause mortality. When home blood pressures are used to make a diagnosis of hypertension, a physician will be correct 89% of the time when interdialytic ambulatory blood pressure recordings are used as the reference standard. Thus, home blood pressure monitoring should become the standard of care when managing hypertension in hemodialysis patients. I advocate the use of blood pressures obtained before and after dialysis to ensure hemodynamic stability whereas home blood pressures for managing hypertension in hemodialysis patients. When using an automatic, validated, oscillometric device (such as HEM 705CP, Omron HealthCare, Bannockburn, IL), home blood pressures averaging 150 mmHg or more carries 80% sensitivity and 84% specificity in diagnosing hypertension.

The management of hypertension in hemodialysis patients begins with dietary and dialysate sodium restriction. Probing dry-weight can provoke uncomfortable symptoms of hypotension during dialysis but is associated with 7/3 mmHg reduction in interdialytic ambulatory blood pressure and more over with no deterioration of quality of life. Thus, this simple maneuver can be effectively used by nephrologists to improve volume

overload and consequently hypertension in hemodialysis patients. However, this strategy is associated with more severe episodes of hypotension and can lead to increase in access thrombosis, therefore should be gently and cautiously applied.

Several drugs including ACE inhibitors, angiotensin receptor blockers, calcium channel blockers, and beta-blockers have been shown to be effective in improving blood pressure control in hemodialysis patients. Pooled evidence suggests that unlike observational cohort studies, these drugs can reduce cardiovascular outcomes in hypertensive hemodialysis patients. Antihypertensive drugs have not shown to be effect outcomes favorably among hemodialysis patients who are not hypertensive.

Collective evidence therefore suggests that careful assessment of hypertension through home blood pressure monitoring and treatment with non-pharmacological and pharmacological methods have the potential to improve long-term outcomes among hypertensive patients on hemodialysis.