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Antihypertensives and volume management in blood pressure control in CKD

Jinho Shin

Hanyang University Medical Center, Korea, Republic of

Concept of volume overload is very well established in clinical field of heart failure and chronic kidney disease (CKD). The former is more relative concept than the latter even though both are pretty common overlapped existences in real world. Volume overload in CKD is one of the key concepts in hypertension control in CKD and volume reduction by using diuretics is an extremely effective drug to reduce blood pressure in CKD.

But major hypertension guidelines emphasize individualized approach in selecting antihypertensive drug and setting the target blood pressure. And it may be complicated to carry out blood pressure control according to volume status in individual basis because volume overload even may not be exist in significant fraction of CKD patients. Moreover, volume status maybe dynamic interactive process among renal sodium excretion, sodium intake, amount and duration of diuretics, and sympathetic tone activated by hypotension by the other antihypertensive drugs, stress, and underlying heart failure.

Renin angiotensin system (RAS) has important role in CKD and renal damage represented by proteinuria. And RAS blockade has primary role in blood pressure control in CKD with renal damage. But routine use of diuretics under the concept of volume overload preclude or limit the use of RAS blockade in full dose. Even in a patient with volume overload, the concept of volume overload had better be temporary or marginal once diuretics is considered. Such limited use of diuretic could maximize the chance to use RAS blockade in full dose. This concept could be advocated by the concurrent condition such as heart failure in need of beta blocker whereas it could be challenged by the side effect such as hyperkalemia.

Precedent use of RAS blockade and other drugs in full dose and judicious or minimal use of diuretics to assure euvolemia and adequate control of blood pressure will be a topic to be discussed.