Optimal combination treatment strategy in hypertension

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Recent guideline encourages use of the combination therapy in most hypertensive patients. However, they do not specify particular drug combinations and broadly recommend the combination of two drugs that have different antihypertensive mechanisms.

In the 2018 ESC/ESH guideline, preferred drug combination was more specifically described according to the patient’s situation and simplified drug treatment algorithms with the preferred use of an angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB), combined with a calcium channel blocker (CCB) and/or a diuretics as the core treatment strategy for most patients. This lecture is aimed to speculate which of the combinations is better among that combinations

1. ACE inhibitor / ARB + CCB Versus Diuretics
   In the ACCOMPLISH study, benazepril-amlodipine combination was compared to the benazepril-hydrochlorothiazide combination in high risk patients. Primary outcome was the composite of various cardiovascular event or death. In a mean follow up periods of 36months, the frequency of primary outcome was significantly lower in the benazepril-amlodipine group. When they further reviewed renal outcomes, event rates for doubling of serum creatinine concentration or progression of CKD were also significantly lower in benazepril–amlodipine group.

2. ACE inhibitor Versus ARB
   ACE inhibitor is different from the ARB because, ACE inhibitor can additionally increase bradykinin activity. Bradykinin is an important autacoid with significant effects on vascular function and structure. Bradykinin increases the activity and expression of endothelial nitric oxide synthase and prevents the apoptosis of endothelial cells. For this reason, in the meta-analyses that compared ACE inhibitor and ARB on various cardiovascular outcome, the performance of ACE inhibitor was better than ARB.

From this available scientific evidence, it is tempting to speculate that the combination of ACE inhibitors (but not ARBs) with CCB provides effective protection from clinical events.

Reference