Editorial

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Drug Reactions Offending the Kidney

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Editorial

The number of medications currently on the market is incalculable, and their prescription is steadily increasing, raising the risk of severe effects. Currently, the entire population is exposed to a variety of pharmacologic substances, the majority of which are toxic and used without scientific explanation. Even more pharmaceuticals are consumed without medical supervision or prescription, unintentionally, with food, herbal remedies, and over-the-counter medications. This result in widespread toxicity that is difficult to detect, frequently goes unnoticed, and can be highly harmful. Because most medications are eliminated through the kidney, it's fair to believe that the kidney could be a special target for their hazardous effects.

If you have chronic kidney disease (CKD), diabetes, or high blood pressure, or if you use certain blood pressure medications that impact your kidneys, you should take precautions to preserve your kidneys. ACE inhibitors and ARBs are two types of blood pressure medications that can help delay renal failure by slowing the loss of kidney function. If you're taking one of these medications, you can know by its generic name. ACE inhibitors have generic names that end in –pril, while ARBs have generic names that end in –sartan, such as lisinopril and losartan.

To achieve your blood pressure targets, you may also take a diuretic, generally known as a water pill.

Effect of antihypertensive drugs on chronic kidney disease

Chronic kidney disease (CKD) is a global health problem that has reached epidemic proportions. For many years, CKD may go undetected. Cardiovascular disease is more common in patients with CKD. Microalbuminuria and lowered GFR are well-known cardiovascular risk factors in both diabetic and nondiabetic hypertensive people, and many older patients develop or die from cardiovascular disease rather than ESRD. The findings of the Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT) showed that chlorthalidone was superior to other medicines in preventing one or more major kinds of cardiovascular disease; however no meaningful difference in all-cause mortality was discovered.

In the Prevention of Renal and Vascular End-stage Disease (PREVEND) trial, proteinuria, comprising both microalbuminuria and clinical proteinuria, was identified as a major predictor of kidney disease progression. Through pro-inflammatory and pro-fibrogenetic damage in tubular cells, which can facilitate the development of interstitial fibrosis and tubular atrophy, and definitely has a pathogenic effect in the loss of renal function.

The main study is the Ongoing Telmisartan Alone and in Combination with Ramipril Global Endpoint Trial (ONTARGET44), which looked at the effect of telmisartan plus ramipril versus monotherapies in 25,620 patients with established atherosclerotic vascular disease or diabetes with end-organ damage and found a reduction in albuminuria in both the telmisartan (P=0.004) and combination therapy groups (P=0.001) that (median 56 months).

When a physician notices a change in renal function, he should take a thorough drug history to see if any of the medications being used could be the cause of the renal impairment. PCr and electrolyte concentrations must be determined, as well as their changes over time. Uranalysis, as well as other tests such as acid–base status, enzymuria, renal echography, urine cultures, eosinophiluria, and eosinophil blood count, should always be done.

The most research has probably been done on ACEIs and ARBs. They are the most commonly used drugs in CKD patients, particularly those with diabetes, because of their ability to induce dilation of efferent arterioles in the renal glomerulus, resulting in lower intra-glomerular pressure, and to inhibit pro-inflammatory and proliferative actions of angiotensin II. They also have neutral metabolic effects and have been shown to significantly reduce proteinuria. The long-term effects of other medicines on CKD are less well-studied. CCBs have been shown to efficiently manage blood pressure, -blockers have been shown to regulate sympathetic nervous system over activity seen in chronic renal failure, and diuretics have been shown to limit intravascular volume expansion induced by fluid retention.