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Synoptic Overview on Chronic Renal Failure Patients with Cardiovascular Disease

Sanja Salinas*

Department of Toxicology, Virtual University, Sau Paulo, Brazil

Commentary

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***For Correspondence:**
Sanja Salinas, Department of Toxicology, Virtual University, Sau Paulo, Brazil

E-mail: salinas@gmail.com

DESCRIPTION

Cardiovascular disease is a significant contribution to renal disease morbidity. In individuals with Chronic Renal Insufficiency (CRI), the spectrum of Cardiovascular Disease (CVD) comprises Left Ventricular Hypertrophy (LVH) and dilatation, ischemic heart disease and peripheral vascular disease. The onset and progression of heart illness in renal patients is influenced by both "conventional" and "uremia-specific" variables. Recent research suggests that the events that contribute to CVD start early in CRI, leading to concentric LVH, left ventricular dilatation, congestive heart failure and ischemic heart disease.

Many of the coexisting disorders that have been consistently recognized as contributing to the burden of cardiovascular disease in renal populations can be altered with pharmacological intervention. Hypertension, anemia, hyperparathyroidism and dyslipidemia all have specific treatments. Many of these parameters such as anemia and hypertension during end-stage renal illness have been shown to improve the cardiovascular system in

studies thus far. In all groups of CRI patients earlier intervention may offer the best chance to lessen the burden of illness.

End-stage renal disease is becoming more common in the United States. Patients with early chronic kidney disease from which future end-stage renal disease patients would arise is 30 to 60 times larger than the existing pool of end-stage renal disease patients. However, not all patients with early chronic kidney disease will advance to end-stage renal disease.

Patients with chronic renal failure tend to have a much higher risk of cardiovascular disease than the overall population. For example, coronary artery disease is prevalent in around 40% of hemodialysis and peritoneal dialysis patients while left ventricular hypertrophy is prevalent in roughly 75% of these individuals. The annual rate of cardiovascular death is expected to be around 9%. Cardiovascular mortality among dialysis patients is 10 to 20 times greater than in the general population even after stratification by age, gender, race and the presence or absence of diabetes.

Chronic renal disease patients should be placed in the highest risk category for subsequent cardiovascular events. Cardiac failure is more common in chronic kidney disease patients than in the general population and it is an independent predictor of death. The prevalence of heart failure among hemodialysis and peritoneal dialysis patients is over 40%. Cardiovascular disease and left ventricular hypertrophy are both risk factors for cardiac failure. In practise, determining whether cardiac failure is caused by left ventricular dysfunction or extracellular fluid volume overload is difficult. Cardiovascular disease should be assessed in patients who develop clinical symptoms of heart failure.

Non-traditional risk factors like oxidative stress and inflammation are also considerably more common in this population than in healthy people. Even in early stages of CKD, renal illness is linked to an increase in oxidative stress indicators. This could be due to an increase in reactive oxygen species and a reduction in antioxidant defence. This oxidative stress can hasten the progression of kidney damage.

With worsening renal function, inflammatory markers including C reactive protein and cytokines rise implying that CKD is a low-grade inflammatory condition. Renal function degradation is aided by inflammation. The inflammatory process can be triggered by a number of conditions including oxidative stress. In individuals with CKD who are considered high-risk, statin therapy is associated with a reduction in the risk of all major vascular events. These positive effects appear to be the result of not just their hypolipidemic effect but also their pleitropic actions, which include oxidative stress and inflammation control.

HMG-CoA reductase inhibitors (statins) may reduce the loss of renal function in people with chronic renal failure according to limited evidence. The goal of this trial was to see if pravastatin could lower the rate of renal function loss in persons with moderate chronic renal failure. This was a post hoc subgroup analysis of a double-blind placebo-controlled randomised experiment.