Connection between Chronic Kidney Disease and Heart Disease

Heart disease is one of the leading causes of death in America, with more than 70 million Americans currently suffering from it. Studies have demonstrated that chronic kidney disease (CKD) is an independent risk factor for heart disease, especially for individuals on dialysis.[1] With 20 million Americans suffering from CKD, it is important to focus clinical efforts on disease management of CKD as well as heart disease.

Scientific evidence has shown that individuals with CKD have a greater chance of dying from complications of heart disease than from complications of kidney failure. Individuals with CKD are at a higher risk of developing three types of heart disease: atherosclerosis, arteriosclerosis and cardiomyopathy.[2]

- **Atherosclerosis** is defined as the thickening and hardening of arteries through the build up of plaque (fatty substances, cholesterol, cellular waste products, calcium, and fibrin [clotting material found in the blood]). Atherosclerosis is a form of arteriosclerosis.
- **Arteriosclerosis** means "hardening of the arteries," that occurs over an extended period of time when the arteries become hard and brittle, blood vessels thicken and there is an overall loss of elasticity in the arteries. This can happen in the arteries of the cardiovascular system, brain, kidneys, lower and upper extremities.
- **Cardiomyopathy** is a very serious condition in which the heart muscle is inflamed and cannot function at its maximum capacity.[3]

Research has also demonstrated a pathologic basis for an increased risk of heart disease in individuals with CKD:

- Comorbidities such as diabetes and hypertension.
- Rapid progression of atherosclerosis.
- Inadequate use of primary preventive measures in patients with CKD.
- Complications from CKD such as anemia.[2]

Furthermore, an individual with a small loss of kidney function has a two-fold risk of developing heart disease. The majority of individuals are not aware that they are affected by CKD because strokes and heart attacks claim their lives before kidney failure.[4] Individuals should be educated about the effectiveness of disease management as an measure in preventing death from both CKD and heart disease.

Sources:

[1] Centers for Disease Control and Prevention Division of Heart Disease and Stroke Prevention.

[2] Wali R. Henrich W. (2005) Chronic Kidney Disease: A Risk Factor for Cardiovascular Disease. Cardio Clin 23:343-362.

[3] American Heart Association, 2006.

[4] National Kidney and Urologic Diseases Information Clearinghouse. Chronic Kidney Disease: A Family Affair. Accessed June 21, 2006 from http://kidney.niddk.nih.gov/kudiseases/pubs/chronickidneydiseases/ckdfamily.pdf.

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