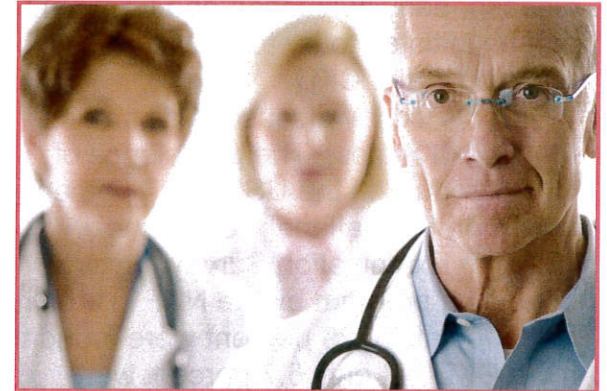


Doctor to Doctor



Provided as a service for
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Dr. Gerald C. Groggel is Chief of Nephrology at the University of Nebraska Medical Center and a member of the kidney transplantation team. He also serves as medical director for the RAI Care Centers in Omaha.

For more than 20 years, Dr. Groggel has forged new paths in nephrology by securing more than \$1.3 million dollars in research grants.

His work has appeared in the American Journal of Kidney Disease, Kidney International and the Journal of the American Society of Nephrology. In addition, Dr. Groggel received the Clinical Investigator Award from the National Institutes of Health and the Sir William Osler Teaching Award from the University of Nebraska.

Dr. Groggel completed a clinical fellowship in nephrology at the University of Kentucky College of Medicine in Lexington in 1980 and a research fellowship in nephrology in the renal unit at Boston University in 1983.

He also served on the Board of Directors of the National Kidney Foundation of Nebraska (now the Nebraska Kidney Association) and was the foundation president from 2002-2004.

Dr. Groggel is board-certified in internal medicine and nephrology.

For additional information on the programs and services of the Nebraska Kidney Association, please call 402.572.3180 or NE Toll Free: 800.642.1255. or visit our website: www.kidneyne.org E-mail us at: nkaoffice@kidneyne.org

Testing for Chronic Kidney Disease

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The National Kidney Foundation (NKF) recently issued a position statement on testing for chronic kidney disease (CKD). The hope is that by testing for kidney disease, early evaluation and treatment can be initiated to try to slow the progression of the CKD.

Chronic kidney disease is common in the United States. The prevalence of CKD in adults in the US is 11.7 percent based on the National Health and Nutrition Examination Survey. In a screening program by the NKF in a high risk population, 29 percent were found to have CKD but only 6.7 percent were aware that they had CKD.

Recent studies clearly demonstrated that CKD is a very important risk factor for cardiovascular disease. Many more people with CKD will die from their cardiovascular disease than will ever reach end stage renal disease and require dialysis. Important risk factors for CKD include diabetes mellitus, hypertension, cardiovascular disease, a family history of CKD, obesity, and an age greater than 60. Certainly, any patient with any of these risk factors should be screened for chronic kidney disease.

Two tests are used to screen for CKD. These are testing for proteinuria in the urine and measuring the level of kidney function using equations to calculate the

Five Stages of CKD

There are five stages of Chronic Kidney Disease based on GFR.

- **Stage One** - GFR greater than 90 may indicate slight kidney damage.
- **Stage Two** - GFR between 60-90 signals a mild decrease in kidney function.
- **Stage Three** - GFR 30-60, moderate decrease in kidney function.
- **Stage Four** - GFR 15-30, severe decrease in kidney function.
- **Stage Five** - GFR less than 15, kidney failure. Dialysis or kidney transplant necessary.

glomerular filtration rate (GFR). Testing for albuminuria is more sensitive and specific for CKD in adults than proteinuria. This can be measured on a spot urine sample where the albumin and creatinine are both measured in the urine and the albumin to creatinine ratio is calculated, making sure both albumin and creatinine are in the same units.

Abnormal albuminuria, defined as microalbuminuria, is a ratio greater than 0.03, which corresponds to 0.03 grams or 30 mg per 24 hours.

Once this ratio is greater than 0.3 or 300 mg per 24 hours, this is called macroalbuminuria or clinical proteinuria.

There are a number of transient causes for albuminuria and these would include urinary tract infection, exercise, fever, congestive heart failure, and hyperglycemia. Thus, to confirm the presence of albuminuria two of three abnormal findings are required over a minimum of three months. The presence of albuminuria also identifies patients at higher risk for cardiovascular disease as well, whether they are diabetic or not.

The second test is a calculation of the GFR. Using the serum creatinine, a number of equations have been developed to calculate the GFR. The most commonly used equation is the Modification of Diet in Renal Disease (MDRD) study equation. This equation has been validated in multiple populations. A GFR below 60 mls per minute per 1.73 m² is considered chronic kidney disease.

This equation is available on various websites but a goal is to have all laboratories use this calculation whenever a serum creatinine is measured. With the presence of chronic kidney disease, a patient should have all of their risk factors treated. These treatments will be addressed in another issue.

In summary, with two simple tests, a spot urine sample for albuminuria and a serum creatinine for calculation of GFR, people can be screened for kidney disease. Any patient with any of the risks factors discussed above should be screened.

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