Diabetes Resources

Practical Information for Nevada Health Care Professionals

Helping Your Patients with Renal Disease

Nephropathy occurs in 20% to 40% of persons with diabetes, and nearly 45% of the 100,000 new cases of kidney failure diagnosed in the United States each year are caused by diabetes. Of the 21 million Americans with Type 2 diabetes, 150,000 have kidney failure. Kidney damage may begin within 10 years of diagnosis, but may take another 15 to 25 years before renal replacement treatment is needed.

Microalbuminuria (30-299 mcg albumin/mg creatinine in a spot urine sample) is a marker for early nephropathy. Progression to macroalbuminuria (positive protein on standard dipstick, representing $\geq$300 mcg albumin/ mg creatinine) portends the development of kidney failure. The ADA recommends that all persons with Type 2 diabetes have annual tests for the presence of microalbuminuria and serum creatinine for the estimation of glomerular filtration rate.[1]

Nephropathy is preventable with early and aggressive intervention. Strategies to decrease kidney damage include:

- Intensive diabetes management with the goal of achieving near normoglycemia delays the onset and progression of microalbuminuria.
- Aggressive BP lowering to a goal of less than 130/80 (or 125/75 with established renal disease) can decrease albumin excretion and kidney failure. Most studies have demonstrated superior results with ACE inhibitors and ARBs (decrease microalbumin 45%), although hyperkalemia and rise in creatinine may occur. Other medications that may be used include diuretics, beta-blockers (particularly in combination with diuretics), non-DHP calcium channel blockers or alpha-1 blockers. The roles of aldosterone antagonists and ACE-I/ARB combinations are not clear.
- Protein restriction to not more than 0.8-1.0 g/kg/day
- Lipid-lowering with a statin
- Treatment of metabolic acidosis
- Smoking cessation

It is also important to address other possible contributors to renal disease, including use of NSAIDs (or other nephrotoxic agents), obstructive uropathy, hepatitis B or C, autoimmune disease, or infection.

Concurrent medical problems include coronary, cerebral or peripheral vascular disease; anemia; diabetes-associated ophthalmopathy; calcium, phosphorous and parathyroid hormone imbalance (with resulting bone disease); hyperkalemia; volume overload; coagulopathy; sexual dysfunction; depression; and malnutrition. All medications need to be reviewed for dose adjustment or discontinuation as kidney function deteriorates.

There is evidence that cost, morbidity and mortality may be lowered if patients are referred to a nephrologist when the estimated GFR falls below 60 mL/min or serum creatinine is above 1.2 mg/dL in a woman or 1.5mg/dL in a man or if difficulties occur in the management of hypertension or hyperkalemia. Estimated GFR is often calculated automatically by clinical labs[2]. In the presence of reduced renal function, estimated GFR is as accurate as 24-hour urine collections, and is much easier to obtain; extremes of age, severe malnutrition or obesity, vegetarian diet, or rapidly changing renal function decrease its validity. Serum creatinine of 10-12 mg/dL, (or creatinine clearance 15 mL/min) signals the need for renal replacement therapy (peritoneal or hemodialysis or kidney transplant).

1 Diabetes Care, Vol. 30, Supplement 1, Janaury 2007, page s19

2 Estimated GFR calculators: www.kidney.org/professionals/KLS/gfr.cfm; medcalc3000.com/GFREstimate.htm; nkdep.nih.gov/professionals/gfr_calculators/index.htm

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Resources for Clinicians

The following resources are FREE and available to the public.

Kidney Beginnings: A Patient's Guide to Living with Reduced Kidney Function—This resource is produced by the American Association of Kidney Patients to educate patients on what kidney disease means to them and how they can be the most important member of their healthcare team. The booklet covers a wide range of kidney disease factors and includes multiple charts for tracking information and lab values. It can be used by healthcare providers and case managers for their own education on the specifics of chronic kidney disease and related factors including nutrition, exercise, employment, and emotional health. The booklet is available at www.aakp.org/brochures/kidney-beginnings/index.cfm.

Resource Helps Providers Explain GFR Results: A Patient ant Provider Tool—NKDEP has developed a resource, *Explaining GFR: A Tear-off Pad for Clinical Use*, to help health care professionals explain estimated GFR (eGFR) results to their patients. The tear-off sheets provide simple explanations of the kidneys, kidney function and GFR results; suggested actions for maintaining kidney health based on the GFR result; and key concepts and talking points for providers to use when educating patients about chronic kidney disease (CKD). Download or order at www.nkdep.nih.gov/resources/ExplainingGFR.htm.

PCP Toolcard—This resource, designed by the National Institutes of Health (NIH) as part of the National Kidney Disease Education Program (NKDEP), is a quick reference tool for healthcare providers. Laminated and sized to fit in a lab coat pocket, the card lists information for identifying and treating kidney disease. Download this tool at www.nkdep.nih.gov/resources/chronic_kidney_disease_reference.htm.

NKDEP Make Health a Family Reunion Affair—Because African Americans suffer disproportionately from diabetes, National Kidney Disease Education Program (NKDEP) has developed materials designed to help African American families share information about the connections between diabetes, high blood pressure, and kidney disease. NKDEP has developed this family reunion health guide for use at family reunions, an opportune time for sharing information. Access the guide at www.nkdep.nih.gov/familyreunion.

Websites—The editorial committee has identified websites that you may find informative:

- American Diabetes Association: www.diabetes.org
- National Institute of Health: www.niddk.nih.gov/health/diabetes/diabetes.htm
- American Heart Association Heart of Diabetes Program: www.americanheart.org/diabetes
- American Association of Diabetes Educators: www.diabeteseducator.org
- American Dietetic Association: www.eatright.org
- National Kidney Foundation: www.kidney.org
- Fistula First Breakthrough Initiative: www.fistulafirst.org
- American Association of Kidney Patients: www.aakp.org
- American Kidney Fund: www.akfinc.org
- Kidney School: www.kidneyschool.org

For Health Care Professionals

- National Kidney Foundation - clinical action plans: www.kidney.org/professionals/kdoqi/cap/index.html
- National Diabetes Education Program - GFR calculators: http://nkdep.nih.gov/professionals/gfr_calculators/index.htm

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