

Gene Panel Detects Inherited Cystic and Glomerular Kidney Diseases

A new kidney disease gene panel provides a comprehensive, cost-effective tool for genetic diagnosis of patients with cystic and glomerular inherited kidney diseases, reports a clinical investigation in *Kidney International*.

The researchers developed and evaluated a kidney disease panel consisting of 140 genes having causal or other associations with cystic and glomerular inherited kidney diseases. The study included a validation cohort of 116 patients with known mutations and a diagnostic cohort of 305 patients: 207 with suspected inherited cystic disease and 98 with glomerular disease.

In the validation cohort, 134 of 135 previously known mutations were identified by targeted next-generation sequencing using the kidney disease panel, for a sensitivity of 99%. In the diagnostic cohort, the panel identified causative mutations in 78% of patients with inherited cystic kidney diseases and 62% with glomerular diseases. Rates of familial cases were 44% in patients with cystic diseases and 81% in those with glomerular diseases.

Copy number variants were detected in about 10% of diagnosed cases. Fifteen percent of patients had an unspecified clinical diagnosis at referral, while 2% had an inaccurate diagnosis. The costs of sequencing using the kidney disease gene panel were 50% to 70% lower than with other genetic testing approaches.

Molecular diagnosis of inherited kidney disease poses a difficult challenge. The new study validates the 140-gene kidney disease panel as a noninvasive, cost-effective tool for diagnosis of cystic and glomerular inherited kidney diseases. This approach leads to an etiologic diagnosis in three-fourths of cases; the authors find it particularly valuable in patients with nonspecific or atypical phenotypes [Bulich G, et al. A kidney-disease gene panel allows a comprehensive genetic diagnosis of cystic and glomerular inherited kidney diseases. *Kidney Int* 2018; 94:363–371]. ■

Lower Rates of Microvascular Complications after Bariatric Surgery

In severely obese adults with type 2 diabetes, bariatric surgery reduces the incidence of microvascular complications, including nephropathy, reports a study in *Annals of Internal Medicine*.

The retrospective study included 4024 patients who underwent bariatric surgery at four US health systems from 2005 to 2011. The patients, aged 19 to 79, were followed up to 2015. About three-fourths of patients were women; the same percentage had a body mass index of 40 kg/m² or higher.

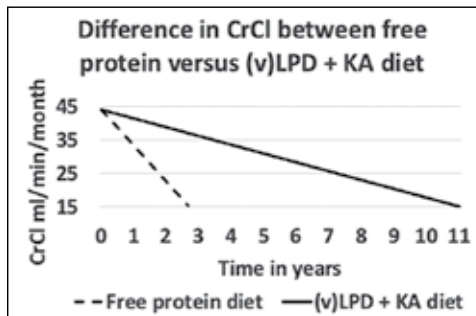
Bariatric surgery patients were matched for age, sex, body mass index, hemoglobin A1c, insulin use, duration of diabetes, and intensity of healthcare use to 11,059 patients who received usual care. A composite of the first incident retinopathy, neuropathy, or nephropathy was compared between groups.

Five-year risk of incident microvascular disease was 16.9% after bariatric surgery versus 34.7% with usual care: adjusted hazard ratio 0.41. The incidence of all three complications was lower in the bariatric surgery group: 4.9% versus 10.0% for nephropathy, 7.2% versus 21.4% for neuropathy, and 7.2% versus 11.2% for retinopathy. Hazard ratios were 0.41, 0.37, and 0.55, respectively. Nephropathy risk was initially higher in the bariatric surgery group, but declined rapidly and remained lower in years 1 through 7.

Previous studies have shown that bariatric surgery can induce remission of type 2 diabetes. The new study is one of the first to look at how surgical treatment for obesity affects the risk of diabetes-related microvascular complications.

The matched cohort study finds about a one-half reduction in the incidence of microvascular complications in the 5 years after bariatric surgery. Although this trend is driven mainly by a reduction in neuropathy, significant reductions in nephropathy and retinopathy are observed as well. The findings “should help patients and providers to better understand the potential tradeoffs of bariatric surgery as treatment of T2DM and help them to make more informed decisions about care,” the investigators conclude [O’Brien R, et al. Microvascular outcomes in patients with diabetes after bariatric surgery versus usual care: A matched cohort study. *Ann Intern Med* 2018; DOI:10.7326/M17-2383]. ■

Can a low protein diet (LPD) supplemented with a keto-analogue (KA) make a meaningful difference for diabetic nephropathy patients? YES IT CAN!



- 32 patients with diabetic nephropathy were put on an unrestricted diet for 1.8 years (period 1) and then switched to LDP+KA with or vLPD+KA and followed for a mean of 3.7 more years (period 2).
- Antihypertensive therapy was similar during the unrestricted and restricted periods.

Results:

During the unrestricted diet period, CrCl dropped 0.9 ml/min/month (mean).

During the LDP+KA or vLPD+KA period, CrCl dropped 0.22 ml/min/month (mean) ($p < 0.001$).

Data from: **Dietary treatment of diabetic nephropathy with chronic renal failure.** Barsotti G Et al. *NDT* (1988) 13 [Suppl 8]:49-52.

22 IDDM patients, 10 NIDDM patients.

Patients with CrCl ranging from 19-6.5 ml/min were assigned to vLPD+KA (protein 0.3g/kg/day).

Patients with CrCl ranging from 60-22 ml/min were assigned to LPD + KA (protein 0.7g/Kg/day).

Both LPD diets were vegetarian based.

Changes in body weight, Albumin, IgG, IgA, IgM and transferrin did not differ between the unrestricted and restricted diet periods.

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Are you a fellow and have a tip or idea you'd like to share with your fellow peers and the broader kidney community?

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