Model identifies individuals at high risk of occult chronic kidney disease

Although serum creatinine measurement is inexpensive and routinely available, a considerable proportion of patients are still diagnosed with chronic kidney disease (CKD) only when nearing end-stage renal failure. Earlier diagnosis would allow more-timely initiation of therapy to slow progression. To aid early detection of CKD, Bang *et al.* have developed and validated a scoring system that can identify individuals with a high likelihood of having underlying CKD.

Data were obtained for 8,530 adults who participated in National Health and Nutrition Examination Surveys conducted in the US in 1999–2000 and 2001–2002. CKD was defined as an estimated glomerular filtration rate of less than 60 ml/min/1.73 m^2; 601 participants had CKD. Multivariate analysis of data from a training cohort comprising 5,666 individuals detected nine variables (age, female sex, hypertension, diabetes, peripheral vascular disease, history of cardiovascular disease, history of congestive heart failure, proteinuria, and anemia) that were significantly associated with CKD.

Validation of the model in an internal cohort ($n = 2,864$), and an external cohort derived from the Atherosclerosis Risk in Communities study ($n = 12,038$), produced areas under the receiver operating characteristic curve of 0.88 and 0.71, respectively. At a cutoff score of ≥4, the model had a sensitivity of 92% and a specificity of 68%. Although the specificity of the model was relatively poor, the authors concluded that the consequences of misclassification would be minimal, given the ease and low cost of confirmatory serum creatinine testing.

Original article Bang H *et al.* (2007) SCreening for Occult REnal Disease (SCORED): a simple prediction model for chronic kidney disease. *Arch Intern Med* **167:** 374–381

Cigarette smoking is associated with albuminuria in hypertensive adults in the US

Researchers have investigated the association between smoking status and albuminuria among 15,535 adult participants of the third National Health and Nutrition Examination Survey. Smoking and albuminuria were not consistently associated in nonhypertensive individuals, but associations were found in people with high blood pressure.

In total, 13,121 participants in the analysis were normoalbuminuric (with a mean urine albumin:creatinine ratio 6.3 μg/mg) and 2,414 were albuminuric (with a mean urine albumin:creatinine ratio 143 μg/mg). Smoking status was assessed by self-reported lifetime cigarette use in pack-years (the number of years a full pack of 20 cigarettes was smoked every day) and by serum cotinine, a nicotine metabolite. Participants were categorized as current smokers (smoking >1 cumulative pack-year up until 12 months before examination), former smokers (smoking ceased for ≥12 continuous months before examination) or nonsmokers (never smoked or smoked ≤1 cumulative pack-year).

Albuminuria was present in 1,567 of 5,596 hypertensives (28%) and 847 of 9,939 nonhypertensives (8.5%). Independent of other risk factors, hypertensive current smokers were at 1.85-fold greater risk of albuminuria than were hypertensive nonsmokers. In general, former smoking was not associated with albuminuria in hypertensives, which indicates that smoking cessation might benefit the kidney. The most striking observation was that among hypertensive nonsmokers, a serum cotinine level in the highest quartile was associated with a 41% higher risk of albuminuria than was a serum cotinine level in the lowest quartile. These findings indicate that exposure to passive smoking might have adverse effects on renal health in people with high blood pressure.

Original article Hogan SL *et al.* (2007) Association of cigarette smoking with albuminuria in the United States: the Third National Health and Nutrition Examination Survey. *Ren Fail* **29:** 133–142

High target hemoglobin levels increase risk of death in CKD patients receiving erythropoietin

Treatment with recombinant human erythropoietin or erythropoiesis-stimulating agents is frequently indicated in patients with anemia due to chronic kidney disease. Such therapy is associated with improved muscle strength and neurocognitive function and reduced fatigue, but the optimum target hemoglobin concentration is controversial as several studies have documented an association between high target