

even among those with known risk factors for CKD, including diabetes, hypertension and age >60 years. By contrast, tests for serum lipids and glucose were ordered for 71% and 33%, respectively, of the total test population.

ICD-9-CM diagnostic codes for kidney disease were allocated by physicians in only 3% of cases. Code sensitivity for detecting estimated GFR <60 ml/min/1.73 m² or <30 ml/min/1.73 m² was 11% and 39%, respectively, indicating that CKD is less likely to be detected in its early stages when intervention is most effective.

Guidelines recommending regular testing of high-risk patients for indicators of CKD seem to be ignored by many physicians. Opportunities for early intervention by nephrologists, and for implementation of preventative lifestyle initiatives by healthcare organizations, are therefore being lost. Furthermore, these findings call into question the accuracy of clinical studies of CKD cohorts identified from databases of diagnostic codes and laboratory data.

Rachael Williams

Original article Stevens LA *et al.* (2005) Low rates of testing and diagnostic codes usage in a commercial clinical laboratory: evidence for lack of physician awareness of chronic kidney disease. *J Am Soc Nephrol* 16: 2439–2448

Contradictory guidelines for drug dose adjustment in renal impairment

Secondary sources of drug information are remarkably inconsistent in their advice on adjusting dosages to account for impaired kidney function. This is the worrying conclusion of a systematic comparison of four widely used and hitherto well-respected publications: *British National Formulary*, *Martindale: the Complete Drug Reference*, *Drug Prescribing in Renal Failure* and *American Hospital Formulary System Drug Information*.

Vidal *et al.* found that each publication based its recommendations on a different definition of renal impairment, ranging from undefined qualitative terms to graded glomerular filtration rates. The rationale and search strategies underlying recommendations were not explained in detail. Most sources cited few or no primary references in support of their guidelines.

By comparing entries for the 100 drugs requiring dose-adjustment that were most commonly prescribed at Rabin Medical Center

in 2003, including angiotensin-converting enzyme inhibitors, statins, antibiotics, corticosteroids, analgesics and diuretics, the authors also detected marked variation in the recommended dose modifications. For example, 11 drugs listed as requiring dose adjustment in one publication needed no modification according to another. Seven agents for which no adjustment was recommended in one source were categorized by a second as being contraindicated in patients with renal failure.

It seems that the standards of evidence-based practice are not being met by some producers of information upon which clinicians rely. A dearth of robust data might be contributing to the problem. Nevertheless, this analysis might spur those who compile drug-dosing guidelines to improve their data extraction methodologies, transparency of workflow, citation practices and consistency.

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Original article Vidal L *et al.* (2005) Systematic comparison of four sources of drug information regarding adjustment of dose for renal function. *BMJ* 331: 263–266

Choice of dialysis modality is affected by predialysis education

End-stage renal disease can be treated using a range of renal replacement therapy (RRT) modalities. Uptake of the various modalities varies between countries and centers. This retrospective Belgian study reports that, in one center where patients were provided with predialysis education, most chose a self-care modality.

Of 242 patients beginning RRT during the 6-year study period, 57 were directed towards in-center hemodialysis, the majority for medical or psychosocial reasons. The rest were provided with information about RRT options, including continuous ambulatory peritoneal dialysis, automated peritoneal dialysis, in-center hemodialysis, self-care hemodialysis in a satellite unit and home hemodialysis. Education included individual discussion with a dialysis nurse in charge of the self-care modalities and viewing videos about the range of treatment options.

Eight patients underwent pre-emptive renal transplant. Of the remainder, 60% chose self-care dialysis modalities. Patients choosing self care were, on average, younger than those choosing in-center modalities. Treatment choice

GLOSSARY

ICD-9-CM

International Classification of Disease, Ninth Revision, Clinical Modification

also correlated with the cause of end-stage renal disease: patients with chronic glomerulonephritis or chronic interstitial nephritis were more likely to opt for self care.

As no comparison was performed with patients who received no predialysis education, it is not possible to conclude that the education program affected patients' treatment choices. In this center, however, patients made choices that allowed in-house resources to be focused on those with more complex medical needs.

Rebecca Doherty

Original article Goovaerts T *et al.* (2005) Influence of a pre-dialysis education programme (PDEP) on the mode of renal replacement therapy. *Nephrol Dial Transplant* 20: 1842–1847

Treatable risk factors for peritonitis in children undergoing peritoneal dialysis

In pediatric peritoneal dialysis populations, the risk of developing peritoneal inflammation has been shown to be greatest in the youngest patients. A recently published retrospective analysis of data from Austria has confirmed this correlation, and identified other determinants of risk that are independent of age. Improved management of these age-independent risk factors could curb the growing incidence of peritonitis in this ever-younger dialysis population.

The medical records of 30 children who received peritoneal dialysis—primarily via single-cuff catheters—at the Children's University Hospital in Vienna were analyzed. Of the 13 who were younger than 2 years of age, 77% suffered at least one peritonitis episode, compared with only 30% of the 17 patients older than 2 years of age. Younger children were also more likely to suffer recurrent bouts of peritonitis.

Exit-site infections and low urine volume were found to independently predict peritonitis burden per patient. Low rates of residual glomerular filtration and normalized protein catabolism, as well as an automated procedure (as opposed to continuous ambulatory peritoneal dialysis), were also correlated with indices of poor peritonitis outcomes.

In light of their findings, Boehm and colleagues suggest that amendment of management programs might reduce the risk of children developing peritonitis during peritoneal dialysis. Although requiring confirmation in large prospective trials, introducing antimicrobial prophylaxis,

optimizing nutritional status and increasing dialysis dose could improve the outlook for this young cohort of the dialysis community.

Rachael Williams

Original article Boehm M *et al.* (2005) Risk factors for peritonitis in pediatric peritoneal dialysis: a single-center study. *Pediatr Nephrol* [doi: 10.1007/s00467-005-1953-2]

Online hemoglobin monitoring could improve management of anemia in hemodialysis patients

Less frequent blood tests would undoubtedly enhance the quality of life of hemodialysis patients. Optical devices for measurement of hemoglobin concentration have been incorporated into dialysis monitors for some time, but have only been used to assess relative blood volume. Now researchers have shown that the Hemoscan[®] (Cytometrics Inc., Philadelphia, PA)—a device that surveys the light absorbed by blood flowing through a dialysis machine—can continuously measure absolute hemoglobin concentrations with accuracy and reliability equivalent to laboratory-based determinations.

Chesterton *et al.* calibrated Integra[®] dialysis machines (Hospal, Bologna, Italy) by inputting laboratory values for hemoglobin from blood collected during Hemoscan[®]-monitored hemodialysis sessions. Standard linear regression was used to align the two data sets. Mid-dialysis laboratory and Hemoscan[®] hemoglobin concentrations from 15 patients (mean age 65 years) were then compared. The degree of correlation was high ($r^2 = 0.89$), and was maintained over the 7-month study period ($r^2 = 0.97$). Hemoscan[®] overestimated hemoglobin levels by 1.3% initially, and underestimated them by 1.0% after 7 months.

The authors also compared predialysis laboratory hemoglobin values with data collected from networked Hemoscan[®] monitors and stored in a central computer. Storage of data in this way permits offline collation of values and detection of changes in hemoglobin over time. Precision (r^2) of stored Hemoscan[®] values compared with laboratory-determined hemoglobin concentrations was 0.75.

Continuous measurement of hemoglobin levels using optical monitors will facilitate more rapid correction of anemia than the currently recommended practice of laboratory testing every 4 weeks. Costs and patient discomfort