FROM THE EDITORS

Studies of Obesity, Mineral Bone Disorder, and Cycler Function

Three papers from Asia (Kim *et al.* from Korea; Kiran *et al.* from Hong Kong; Prasad *et al.* from India) present the relationship between body mass index (BMI) and outcome among Asian peritoneal dialysis (PD) patients. In each of these studies low BMI was a risk factor for mortality in patients starting PD. However, obesity only impacted on survival in the Hong Kong study. In an accompanying commentary, Sharon Nessim hypothesizes that low BMI may be a surrogate for malnutrition, inflammation, and co-morbidity, concluding that this group of patients deserves particular attention to identify treatable underlying disease. However, the relationship between obesity and survival is much more complicated and subject to local demographic, ethnic, and geographical influences.

The metabolic syndrome (MS) is common among patients on PD since obesity is an important factor in the development of renal failure worldwide, mostly through type 2 diabetes. Dong and colleagues from Peking University found that 55% of a prevalent population of PD patients from 5 centers across China met the criteria for the MS and explored associations with parameters of bone mineral disorder including parathyroid hormone, the use of vitamin D analogues and the presence of vitamin D deficiency. Although they did not find an association between the MS and vitamin D deficiency, they did associate it with elevated fasting blood glucose concentrations. The definition of the MS in patients on PD is problematic for a variety of reasons. Tim Ellam discusses this issue and explores the epidemiologic complexities that this study presents, speculating on pathogenetic mechanisms. Dysregulated mineral metabolism is also discussed by Angela Wang in an invited review on the impact of calcium loading in patients on PD.

Metformin is cleared by the kidney and markedly elevated plasma levels are a risk factor for the dangerous complication of lactic acidosis and, for this reason, its use in advanced chronic kidney disease is contra-indicated by regulatory authorities. However, the benefits of its use

are well documented for patients with type 2 diabetes, including greater insulin sensitivity and better weight control. Thus, we report with considerable interest on a 4-week cohort study from Saudi Arabia of 35 insulin-dependent type 2 diabetic automated PD patients. The protocol included a gradual introduction of 0.5 – 1.0 g metformin per day, with weekly measurements of lactic acid, anion gap and drug levels (Al-Hwiesh *et al.*). The study was designed to demonstrate feasibility and was clearly too small to prove safety. However, no adverse events were observed. In his accompanying commentary, James Heaf reviews the evidence behind the concerns surrounding metformin use in patients with chronic kidney disease and suggests its place should be reassessed.

One of the marked changes in PD practice over the last 20 years has been the increased use of cyclers, leading to significant benefits for patients including a reduction in treatment burden as well as better management of solute and volume. Cycler design necessitates the use of a pump to fill and drain the peritoneal cavity. Clearly, it is important that the peritoneal cavity be drained as completely as possible in order to minimize the residual volume, which, if increased, can reduce the efficiency of treatment (1), increase the risks of hernias and leaks, as well as the possibility of intra-peritoneal overfill events. This topic is examined in a paper by Cizman and colleagues using US data from Baxter cyclers, identifying practice patterns that present an increased risk of overfill events, including the use of low fill volume and tidal therapies. In a multi-center survey from Ontario that explored the reasons for using tidal dialysis (Blake *et al.*, in this issue of *Peritoneal Dialysis International*), drain pain was cited as the indication for its use in 25% of patients. In a commentary, Peter Blake suggests that drain pain does not receive the prominence that it should and discusses its causes, including the relationship with cycler use and inappropriate catheter length. It seems that in some part, drain pain can relate to the mechanism by which the cycler ensures complete drainage in order to avoid overfill episodes. This is an important issue since it is distressing for patients.

REFERENCES

1. Akonur A, Holmes CJ, Leypoldt JK. Peritoneal residual volume induces variability of ultrafiltration with icodextrin. *Perit Dial Int* 2014 Jan-Feb;34(1):95-9.

Martin Wilkie
Editor-in-Chief

doi:10.3747/pdi.2014.00161