Pre-dialysis creatinine and interdialytic change in creatinine as nutritional markers in haemodialysis patients

Sir,

We read with great interest the recent article by Walther et al. [1], which correlated pre-dialysis creatinine levels and interdialytic creatinine change with nutritional status and mortality in haemodialysis patients. The interdialytic change in creatinine is a surrogate of the creatinine generation occurring within the period that may be quantified more precisely by the creatinine index (CI). Indeed, the significance of serum creatinine concentration as a predictor of mortality has been already reported in haemodialysis patients. However, pre-dialysis creatinine levels could be affected by the patient’s muscle mass, dietary protein/meat intake, dialysis clearance and the presence of residual renal function. The measurements of lean body mass (LBM) by several techniques such as dual energy X-ray absorptiometry (DEXA), computerized tomography scans and bioelectrical impedance (BI) are not readily accessible in routine clinical practice. Both DEXA and BI include excess extracellular water in LBM leading to an overestimation of LBM in overhydrated dialysis patients [2]. Alternatively, the estimation of LBM by creatinine kinetic modelling (CKM) has been validated as a simple and reliable method of routine assessment of muscle mass and protein nutritional status in haemodialysis patients. CKM is based on the principle that the creatinine generation is proportional to LBM in stable dialysis patients who have a constant dietary protein/meat intake. CI is defined as creatinine production, which is equal to the sum of creatinine excretion (dialytic removal and urinary excretion) and metabolic degradation in the steady state [2, 3]. The simple and precise formula to calculate CI was developed and validated in haemodialysis patients. CI derived from CKM and the proposed formula has been recognized as a strong predictor of long-term all-cause and cardiovascular mortality in haemodialysis patients after adjustment for traditional cardiovascular risk factors, whereas no significant association of pre-dialysis creatinine concentrations with mortality was observed in multivariate analysis [4, 5]. It appears that CI is not only a more reliable indicator of long-term protein nutritional status but the trend decline of CI is also a more powerful predictor of all-cause and cardiovascular mortality compared to pre-dialysis creatinine levels alone in haemodialysis patients. We strongly suggest that the regular evaluation of CI should be considered as a routine nutritional assessment of haemodialysis patients and should be incorporated into the criteria of dialysis adequacy.

Conflict of interest statement. None declared.