Lean body mass to estimate GFR

Sir,

The interesting paper by Taylor et al. [1] lends support to the idea that the variables used in the different formulas to estimate GFR (glomerular filtration rate) are surrogate markers of lean body mass. The following letter by Rigalleau et al. [2] did not fully confirm the findings, at least in diabetic patients.

We are rather puzzled by a part of the analysis conducted in the Taylor’s paper however, i.e. it is not clear to us whether the GFR estimated by the new formula (including lean mass) and by the Cockcroft and Gault formula have been normalized in relation to body surface area. We feel that this is an important issue to consider for a proper comparison with measured GFR and the modification of diet in renal disease (MDRD) formulae, which express GFR values as ml/min/1.73 m². It is also not clear why the authors did not match their data against the original, 6-variable MDRD formula. It would be interesting to know whether Taylor’s results afford an improvement over the GFR measured or estimated by the Cockcroft and Gault formula, all after normalizing for body surface area, or the classical MDRD calculation.

Conflict of interest statement. None declared.

Department of Biomedical and Surgical Sciences
University of Verona, Italy
Email: giovanni.gambaro@univr.it


doi:10.1093/ndt/gfm030

Reply

Sir,

We thank Dr Gambaro et al. for their interest in our article. In our study, GFR (glomerular filtration rate) determined by [125I] iothalamate clearance was expressed per 1.73 m² of body surface area, as shown in the text and in Table 1. As these GFR values were used to derive the predictive formula, then body surface area would be an incorporated parameter in this equation. Also, in our publication, comparisons were made between our equation and the 6-variable MDRD equations, as shown in Table 3, but only the simplified MDRD formula was used in the set of figures, as it was the most accurate for our study population. It is important to note that our data does not challenge or invalidate the MDRD formulae but actually there is agreement between the data sets. Our principal purpose was to demonstrate that the relationship between lean body mass and serum creatinine are the primary factors in the establishment of these predictive formulae and all other variables incorporated simply suggest this basic relationship.

Conflict of interest statement. None declared.

Medical University of South Carolina Timothy Taylor
171 Ashley Avenue, Charleston
South Carolina 29425, USA
Email: taylortp@musc.edu
doi:10.1093/ndt/gfm054

Letters

Advance Access publication 16 November 2006

Renal handling of cystatin C

Sir,

Recently, van Rossum et al. [1] published an interesting report on renal extraction of cystatin C (cys C). However, we have some concerns regarding the results and interpretation of these.

First, the authors showed a high correlation between 1/cys C and glomerular filtration rate (GFR) measured as iothalamate plasma clearance. In contrast to that, cys C excretion ratio (Ecal) did not correlate with iothalamate excretion ratio (Ethal), r = 0.05; P = 0.6, calculated from the data given in (Table 1) of the article). Since correlation of 1/cys C with GFR suggests renal elimination of Cys C and concomitantly renal iothalamate excretion ratio determines iothalamate GFR, it is not understandable why Ethal shows no correlation with Ecal.

Secondly, in addition to the missing correlation of Ecys C and Ethal, some patients (e.g. patients 28 and 40) showed extreme divergences of Ecal between left and right, whereas iothalamate excretion ratios were similar (e.g. patient 40: Ecys C: 0.44 vs 0.03, Ethal 0.13 vs 0.18; patient 28: Ecys C: 0.33 vs 0.07, Ethal 0.16 vs 0.20). This phenomenon is not discussed appropriately and raise concerns with respect to the validity of the applied techniques.

Thirdly, based on the presumption that sieving coefficient of cys C is lower than that of iothalamate, the authors concluded that cys C may undergo tubular secretion, since mean Ethal and Ecal were similar. However, the similarity disappears when median or absolute mean difference are considered (Ethal – Ecal; median = 5 and absolute bias = 11.3). Moreover, median Ethal was slightly higher than Ecal (20 vs 16) which seems to be in line with the presumed lower