Letters

After all those fat years: renal consequences of obesity

Sir,

With interest we read the editorial by Wolf on obesity as a renal risk factor [1]. We fully support the author's view that overweight and insulin resistance, as mediators of renal risk, deserve attention not only in morbidly obese patients with overt insulin resistance, but also in renal patients with less severe obesity.

Recent data from our group suggest that the impact of overweight and insulin resistance may be even larger, and relevant to subjects without overt obesity. First, we found that the relationship between body mass index (BMI) and renal haemodynamics is already apparent in subjects without overt obesity. In 102 healthy subjects with a mean BMI of 24.8 (range 16.1–29.7) kg/m², a higher BMI was significantly associated with a higher filtration fraction, without a threshold value. Thus, the balance between afferent and efferent glomerular arteriolar tone is unfavourably altered at values of BMI below the overtly obese range [2].

Moreover, epidemiological data from the general population suggest that the effect of insulin resistance may also extend beyond overt obesity. In the PREVEND cohort (7676 subjects), a higher waist–hip ratio, as an indicator of insulin resistance, was associated with impaired renal function—not only in obese, but also in lean subjects—defined as a BMI <25 kg/m² [3], suggesting that insulin resistance can affect renal function in the absence of obesity. This association was independent from other risk factors, such as hypertension and micro-albuminuria.

The data suggest that the mechanisms present in obese, insulin-resistant renal patients can also be encountered in subjects without overt obesity according to current definitions, and may adversely modify the course of renal function loss. As noted by Wolf, it would be premature to make general recommendations. In particular, the relationship between BMI, nutritional status and overall risk profile in renal patients may not be similar to that in non-renal populations. Nevertheless, the data so far indicate that mechanisms present in overtly obese and/or insulin-resistant subjects may be relevant in much larger populations than assumed so far—and definitely deserve further exploration as to their relevance in renal patients.

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References

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Accurate measurement of albuminuria at reduced cost

Sir,

Screening for albuminuria is important for early detection of renal involvement in diabetes [1]. Because of considerable day-day variation in albumin excretion, the median result of three overnight or first morning collections is taken when accurate diagnosis is needed [2]. Measuring urinary albumin creatinine ratio (ACR) corrects for inaccuracies in timing of collections and dilutional effects [3]. If ACR measured on a single mixed sample of equal-sized aliquots taken from each of the three collections could provide results of similar accuracy to the median value of ACR from three separate collections, accurate measurement of ACR might be obtained at lower cost.

For 1 month all triplicate collections for ACR from our clinic were analysed by both methods. The samples were collected on alternate nights from 29 patients with ACR ranging from 0.3 to 44.8 g/mol, stored at room temperature and brought directly to the laboratory. Samples were analysed within 6 days of collection and confirmed negative for nitrites (Nephur 6 test strips). After mixing thoroughly, a 2.0 ml aliquot was taken from each collection and assayed separately. The median of the three measurements was calculated (ACR Med). A second 2-ml aliquot was taken from each sample and the three aliquots mixed together to form a 6.0 ml mixed sample (ACR Mix), which was then assayed for ACR. The three single samples and the mixed sample were analysed in a single run using immunoturbidimetry [4] (Roche Diagnostics, Basel, Switzerland). Intra-assay coefficients of variation were 4.8% for albumin and 2.9% for creatinine. Analyses were performed on log-transformed data. The geometric mean (interquartile range) for ACR Med was 6.2 (2.8–20.3) vs 5.6 g/mol (2.8–20.5) for ACR Mix (not significant on paired t-test). Correlation between the two measurements was highly significant (r = 0.93, P < 0.001). Figure 1 shows the difference between the two measures of ACR against their mean [5]. The mean

Fig. 1. Limits of agreement (mean ± 2 SD) between ACR Med and ACR Mix.