Serum Alpha-1-Acid Glycoprotein (AAG) in Chronic Renal Failure

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Dear Sir,

Our findings, while confirming the unequivocal elevation of serum AAG in the terminal phase of chronic renal failure (figure 3), as previously reported by others [1-3], show a significant albeit weak 'positive' correlation between serum AAG (log transformed) and serum creatinine concentrations in uncomplicated patients with various degrees of residual renal function (figure 1). In these patients, the mean serum AAG concentration increased significantly in comparison with controls only when serum creatinine exceeded 10 mg/dl (figure 2). In contrast to Dr. Rolan, small amounts of AAG were detected in the urine of normal subjects by Rigas and Heller [4] and Berggard [5]. These authors claimed that the substance indeed is partly excreted by the kidney, its clearance being a little higher than that of albumin and trypsin. All things considered, the possibility that the observed behavior of serum AAG in chronic renal failure reflects at least in part renal retention is, we believe, plausible.

On the other hand, whether the above-mentioned correlation was causal or casual cannot be determined from our data. The measurement of urinary AAG concentrations would certainly be useful in this respect. Unfortunately, it is not available to us. As can be inferred from a more accurate reading of our paper, however, we share Dr. Rolan's scepticism as to renal retention of the substance as major determinant of its elevation in chronic renal failure. The individual levels of serum AAG varied severalfold in patients having the same residual renal function (figure 2, 3), and no further increase was observed in anephric patients (figure 3). That these findings imply that other factors could be involved in the elevation of the substance in this clinical setting is clearly stated in the 'Discussion' section. It may be that, as renal function falls, the abnormal metabolic environment that develops contributes to the rising serum concentration of the substance. Interestingly, the recent work by Haughey et al. [6] shows the reduction but not normalization of AAG levels in serum from uncomplicated transplant recipients at 3 months after surgery. In any case, we repeat, data on the true kinetics of AAG generation and elimination in chronic renal failure are not, as yet, available; further comments are merely speculative. From our results, it appears that the type of renal disease does not contribute to the observed interpatient variability in the serum concentration of AAG. On the contrary, Pfafsky et al. [1] reported normal levels of AAG in serum from uremic patients with nephrotic syndrome, probably because in these patients the substance is lost by way of the urine [7]. Thus, to evaluate the influence, if any, of the declining renal function on serum AAG it is important to have excluded patients with proteinuria from the present study. Parenthetically, proteinuria was checked by commercially available enzyme-coated dipsticks and, if positive reaction occurred, by the measurement of daily protein excretion (Total Protein Test, Environmental Chemical Specialities, Anaheim, Calif.).

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