Proteinuria and Progression of Renal Failure in Patients on a Low-Protein Diet

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Dear Sir,

In patients with nephrotic syndrome, proteinuria may be lessened by a reduced protein intake [1]. It has also been reported that in patients with advanced renal insufficiency, a low-protein diet reduced significantly the urinary protein excretion [2].

In a previous paper [3], we found in 15 uremic patients with heavy albuminuria, put on a low-protein diet providing daily 0.3 g of protein per kilogram body weight and supplemented with ketoanalogues aminoacids (Ke-tosteril, Fresenius, FRG) that initial albuminuria was significantly reduced at 3 and 6 months while serum albumin concentration increased.

We recently studied 34 patients with advanced renal failure (creatinine $452.94 \pm 122.6 \mu\text{mol/l}$) put on the same diet. After an 18-month follow-up, renal function remained stable in 17 patients while renal impairment was progressive in the others, 8 of whom required regular dialysis. In the former group, proteinuria dropped from $1.91 \pm 1.66 \text{ g/24 h}$ to $0.89 \pm 0.81 \text{ g/24 h}$ ($p < 0.01$) at 3 months and remained stable during the follow-up: $0.83 \pm 0.94 \text{ g/24 h}$ ($p < 0.01$) at the end of the survey. In the latter group, proteinuria was initially higher than in the first group: $2.97 \pm 2.33 \text{ g/24 h}$ and after a transient reduction increased to be close to the initial values at the end of the survey $2.56 \pm 1.59 \text{ g/24 h}$ (fig. 1).

Such a relationship between the persistence of a heavy proteinuria and the rate of progression of renal failure has already been reported in patients put on a low-protein diet [4, 5]. It is likely that in uremic patients whose hyperfiltration plays a leading part in the progression of renal failure, the reduction of hyperfiltration by a low-

0 3 6 9 12 15 18
Time, months

Fig. 1. Evolution of proteinuria in uremic patients put on a low-protein diet. ■ = Stability of renal function, ▤ = deterioration of renal function. Quaterly values are compared with baseline values.

* $p < 0.05$, ** $p < 0.01$.

protein diet decreases proteinuria and allows these patients to stop the progression of their renal insufficiency. Another possibility one cannot rule out is that proteinuria itself might have a pathogenetic significance.

Williams et al. [6] recently suggested that proteinuria is a useful guide to the rate of progression of established renal failure. We can add that the course of proteinuria is also a valuable marker of the response of uremic patients to a low-protein diet.

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