

Serum Angiotensin-Converting Enzyme as a Marker of Dialyzer Membrane Biocompatibility?

B.K. Krämer, T. Ulshöfer, K.M. Röss, G.A. Müller, T. Risler

Section of Nephrology and Hypertension, 3rd Department of Internal Medicine, University of Tübingen, Tübingen, FRG

Sir,

We have read with interest the recent letters of Maher et al. [1] and Docci et al. [2]. Both authors suggest that serum angiotensin-converting enzyme is not a useful marker of dialysis membrane biocompatibility, in contrast to earlier findings of Nielsen et al. [3].

16 patients on maintenance haemodialysis for 2-186 months were studied during haemodialysis with cuprophane and non-cuprophane membranes [4]. Serum angiotensin-converting enzyme decreased slightly during haemodialysis, independent of the dialyzer membrane used. In addition, serum angiotensin-converting enzyme levels were nearly identical during use of a cuprophane and a non-cuprophane dialyzer membrane (82.3 ± 3.9 U/min/l vs. 82.6 ± 3.3 U/min/l; range of normal values 18-40 U/min/l, corrected for haemoconcentration) [4].

Serum angiotensin-converting enzyme levels were compared with duration of maintenance haemodialysis in 23 patients (duration of maintenance haemodialysis from 2 to 216 months; age 34-78 years; etiology of renal failure: glomerulonephritis (n = 6), diabetic nephropathy (n = 5), polycystic kidney disease (n = 3), pyelonephritis (n = 2), hypertension (n = 1), multiple myeloma (n = 1), renal artery stenosis (n = 1), unknown (n = 4)). No significant correlation between serum angiotensin-converting enzyme and duration of maintenance haemodialysis was demonstrable (fig. 1).

Our results imply that serum angiotensin-converting enzyme cannot be used as an indicator of dialyzer membrane biocompatibility and are in accordance with the results of other investigators [1, 2, 5-7]. Elevated serum angiotensin-converting enzyme levels in haemodialysis patients have also been demonstrated by several investigators [5, 6, 8-10], but have not been confirmed by others [1-3, 7, 11]. In contrast to our results, most authors were not able to demonstrate a change in serum angiotensin-

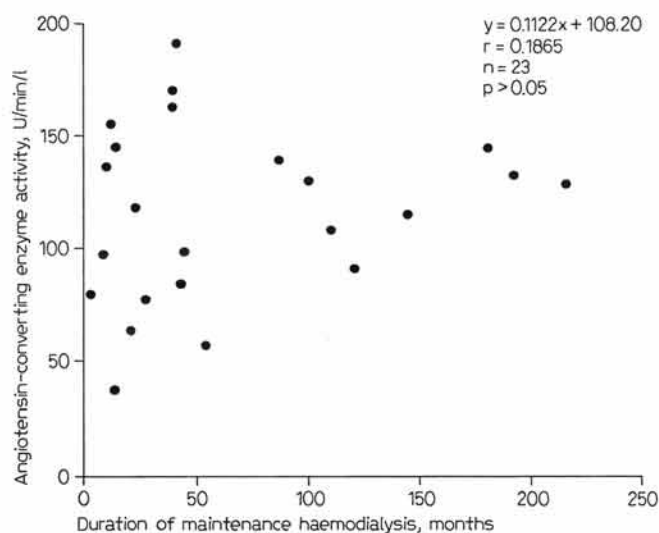


Fig. 1. Angiotensin-converting enzyme activity and duration of maintenance haemodialysis.

converting enzyme activity during haemodialysis [1, 5, 6; 2 and 7: 'increase' due to haemoconcentration], whereas Nielsen et al. [3] demonstrated an increase. In contrast to Patel et al. [6] we were unable to demonstrate a correlation of serum angiotensin-converting enzyme activity with duration of maintenance haemodialysis. Those marked differences between results of the above-mentioned authors may be mainly due to differing series of patients (with respect to disease pattern, age, duration of maintenance haemodialysis, blood pressure regulation), different haemodialysis procedures (with respect to dialyzer, dialysate composition) and different enzyme assays.

In summary, serum angiotensin-converting enzyme activity is not a useful marker of dialyzer membrane biocompatibility. In order to solve some still unanswered

questions dealing with the role of serum angiotensin-converting enzyme activity in end-stage renal disease further studies including a high number of well-analysed patients have to be done.

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Dr. B.K. Krämer
Medizinische Universitätsklinik
Otfried-Müller-Strasse 10
D-7400 Tübingen (FRG)