Digoxin-Like Immunoreacting Activity in the Serum of Patients on Regular Hemodialysis

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Dear Sir,

We were very interested in the report of Dr. Kramer et al. [1] concerning digoxin-like immunoreacting activity (DLIA) in uremic serum. The research for an endogenous inhibitor of the membrane Na-K-ATPase has been supported by false-positive results of radioimmunoassays (RIAs) for digoxin in patients with chronic renal failure not receiving cardiac glycosides [1–3]. An inhibition of the Na-K pump activity has also been described in patients on maintenance hemodialysis [4,5]. This abnormality is acutely reversed by hemodialysis and its correction is related with weight loss occurring/during the dialysis session [4].

We investigated DLIA in a group of patients on regular hemodialysis. The RIA for digoxin used was Immo-phase (Corning Medical and Scientific, Medfield, Mass., USA). The limit of sensitivity was 0.040 ng/ml. The intraassay variability was 2.7% and the interassay variability 3.6%. The patient group included 15 males and 9 females aged 17 – 66 years. Ten patients had an urine output which ranged from 150 to 700 ml/24 h. The re-

1 We wish to thank the staff of 'CD. Virgen de Montserrat' for their cooperation in this work. maining 14 patients were anuric. All patients were on unrestricted protein, fluid, and sodium intake. They never had digoxin. Serum sodium and potassium levels, just before the hemodialysis session, averaged 141 ± 2.5 mmol/l and 5.3 ± 0.9 mmol/l, respectively. We assayed two blood samples of each patient at the start of each hemodialysis and immediately after the hemodialysis session. Weight loss during the course of hemodialysis was registered.

Only 5 patients had DLIA in their serum (table I); in 3 of them, this was present before and after dialysis with values ranging from 0.052 to 0.13 ng/ml. In the other 2 patients, DLIA was only detected in posthemodialysis samples (values were 0.041 and 0.074 ng/ml). DLIA was unrelated to urinary output and weight loss during the hemodialysis session.

Our results confirm the presence of DLIA in serum of patients on regular hemodialysis also. It is important to point out the highly variable values of DLIA according to different RIAs for digoxin [1,3]. In the report of Graves et al. [3], the kit also used by us showed very few false-positive results in contrast to the RIA used by Kramer et al. [1]. We cannot yet relate the DLIA

variations before and after hemodialysis to theoretical removal of an uremic toxin and/or an endogenous inhibitor of the Na-K pump.

Table I. Characteristics of the 5 patients with DLIA in their serum

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