Dietary salt intake and blood pressure control in haemodialysis patients

Sir,

Krautzig et al. [1] reported a decrease in predialysis blood pressure in eight patients when dialysate sodium was reduced from 140 to 135 mmol/l, with a dietary salt restriction of no more than 6 g/day. In contrast, Koorman et al. [2] reported subsequently that predialysis blood pressure in six patients did not change significantly when dialysate sodium was reduced from 140 to 136 mmol/l, but no other dietary interventions were performed.

In the present study we modified dietary sodium intake but did not change dialysate sodium. We compared patients at a midweek haemodialysis session on their usual salt intake with the same patients at a midweek haemodialysis session after having ingested a low-salt diet. Fifteen dialysis patients, eleven male and four female, were studied. Dialysis parameters and dry body-weight were kept constant. We measured predialytic plasma conductivity and intradialytic sodium mass transfer with non-invasive sensor (Diascan, Hospal) by automatic conductivity measurement at the dialysate inlet and outlet. Mean intradialytic sodium mass transfer was 241 ± 83 mmol with salt restriction, P < 0.001 (Student’s t test, paired data). This was equivalent to a salt intake of 10.21 ± 3.4 vs 7.09 ± 2.4 g/day respectively, P < 0.001. Initial plasma conductivity was 14.31 ± 0.22 (usual sodium intake) vs 14.18 ± 0.17 mS/cm (salt restriction), P < 0.01. Predialysis systolic blood pressure decreased with dietary salt restriction from 138.7 ± 16 to 131.8 ± 16 mmHg (P < 0.01), diastolic pressure from 79.3 ± 13 to 75.0 ± 12 mmHg (P < 0.05), and mean arterial pressure from 99.1 ± 12 to 93.9 ± 12 mmHg (P < 0.01). Interdialytic weight gain decreased with salt restriction from 2.26 ± 0.73 to 1.78 ± 0.52 kg (P < 0.001) whereas post-dialysis weight did not change, (66.05 ± 11.9 to 66.05 ± 11.8 kg, NS).

Our results are in agreement with both reports cited above and point to the important role of salt intake in the pathogenesis of hypertension in haemodialysis patients. We agree with Scribner’s personal opinion that antihypertensive medications do not control blood pressure well in such patients [3].

We believe that an appropriate management of hypertension in this patient population can only be obtained if it includes a large dialysis dose allowing the removal of vasoconstrictor substances, the achievement of an adequate dry weight, and the inclusion of dietary sodium restriction. The excellent results of blood pressure control at the Tassin centre in France [4] are obtained without drugs, via a high dialysis dose (Kt/V > 1.7), together with dietary salt restriction (<5 g/day).

Automatic measurement of sodium mass transfer during the dialysis session is a practical tool for the control of dietary salt intake in individual haemodialysis patients, in particular in hypertensive patients. It allows one to proceed to accurate and continuous dietary interventions for each patient.

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