Autonomic Neuropathy and Symptomatic Hypotension in Hemodialysis Patients

S.		Lamas
C.		Quereda
L.		Orofino
R.		Marcén
F.		García
J.		Ortuño

Department of Nephrology, Hospital Ramón y Cajal, Madrid, Spain

S. Lamas, MD, Department of Nephrology, Hospital Ramón y Cajal, Carretera de Colmenar, Km. 9,100, Madrid, Spain

Dear Sir,

In a recent work Malik et al. [1] found widespread cardiovascular autonomic damage in patients with chronic renal failure with independence of their treatment modality. However, they did not study the specific problem of autonomic dysfunction in patients with hemodialysis (HD)-induced hypotension as they assumed these situations are not related, in contrast with what has been published [2, 3].

In order to assess this possible relationship we studied 24 patients divided into three groups: (A) 8 patients (6 male, 2 female) with frequent HD-induced hypotension ($55 \pm 17.7\%$); (B) 8 patients (6 male, 2 female) with low incidence of hypotension ($14.1 \pm 10\%$), and (C) 8 healthy controls (4 male, 4 female). Mean ages were 57.2 ± 8.5 (39–68), 55.5 ± 10.2 (35–71) and 55.3 ± 8 (44–77) years respectively. Groups A and B were similar in time on HD (26.5 ± 17.8 vs. 37.3 ± 37 months), diagnosis (no diabetic patients), presence of vascular calcifications and antihypertensive therapy. We evaluated autonomic response to 6 simple tests or manœuvres which have been exhaustively described and contrasted [4, 5]: deep breathing beat-to-beat variation, 30:15 ratio, Valsalva ratio and blood pressure (BP) responses to standing up, Valsalva manoeuvre and sustained handgrip. Our results are expressed in table I.

In our study none of the 6 tests was able to establish a significant difference between groups A and B. Only post-Valsalva BP ascent was significantly higher in group C ($p < 0.02$) when compared with groups A, B and A + B. The fact that some tests were abnormal in some apparently healthy controls probably has to do with the influence of age on such test [5], with the exception of post-standing and post-Valsalva BP. Therefore we conclude: (1) Autonomic neuropathy is not more frequent among HD patients with symptomatic hypotension; (2) only post-Valsalva variation in BP as a measure of sympathetic response was clearly higher in our control group, and (3) other measures of parasympathetic function (beat-to-beat variation, 30:15 ratio, Valsalva ratio) are altered in HD patients but difficult to compare with healthy controls in elderly populations. Thus, our data do not support a relationship between autonomic neuropathy and HD-induced symptomatic hypotension, as suggested by Malik et al. [1].

Table I. Results of different autonomic responses in the three groups

Test

Groups

Beat-to-beat variation (normal 15 or more) 30:15 ratio (normal 1.04 or more) Valsalva ratio (normal 1.21 or more) Poststanding BP (mm Hg) (normal -10 or less) Post-Valsalva BP (mm Hg) (normal + 5 or more) Post hand grip BP (mm Hg) (normal +16 or more)

P=Pathologic; N = normal.

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Lamas/Quereda/Orofino/Marcén/García/Ortuño

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