Ventricular Ectopic Activity in Hemodialysis

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Dear Sir,

In an interesting study recently published in Nephron, Wizemann et al. [1] concluded that the incidence of ventricular arrhythmias in chronic hemodialysis (HD) patients is primarily dependent on the presence of preexisting coronary artery disease and that HD or related methods do not increase the risk of ventricular ectopics in patients without digitalis medication. The first conclusion is in agreement with our previously published work [2] in which we studied 22 HD patients with EKG Holter monitoring, 15 uremics before starting replacement therapy and 25 healthy normals. Our patients with complex arrhythmias had evidence of preexisting cardiopathy, which seemed to be the main predisposing factor.

However, our data differ with respect to the ectopic activity induction by HD per se. We found that most complex arrhythmias, even in nondigitalized patients, develop during the last hours of HD or just thereafter. Nevertheless clinical (weight, cardiac rate, blood pressure) or analytical (serum urea, osmolality, potassium, calcium, phosphate, magnesium and bicarbonate) changes induced by HD were not different in patients with arrhythmias than in those without them.

Recently, we have studied 35 HD patients with Holter monitoring [unpubl. data]. The number and percentage of patients with arrhythmias classified in 4-hour periods, according to the criteria of Lown and Graboyes [3], before, during and after HD up to 24 h are recorded in table I. Ten patients (28%) showed complex arrhythmias (Lown grades II-V) during the registered time, and only 1 of them was on digitalis treatment. In 8 patients (80%) these arrhythmias were detected during HD or in the next 4-hour period, and as can be seen in table I, their incidence during these two intervals (23%) is much greater than in pre-HD (3%) or in later post-HD periods (6%) with a slight increase during sleep (8%).

An important difference between our study and that of Wizemann et al. [1] is the strategy of monitoring: we included a basal 4-hour period before the HD session (after 72 h of last HD), a conventional 4-hour HD with acetate and cuprophane membrane, and a post-HD 16-hour period. On the contrary, in Wizeman's work, the monitoring starts with HD, while the last 4 h are used as 'pre-HD' control. We found that although the greatest ectopic activity is coincident with the end of HD, it persisted for many hours in some patients. This fact and perhaps some differences in the population studied are probably the causes of this discrepancy.

Table I. Ectopic ventricular activity in HD patients (n = 35)

Figures in parentheses are percentages.

However, the contribution of these disturbances to the mortality is likely to be quite small. Our first study was performed 5 years ago and only 2 patients with complex arrhythmias have died since then, but none of them due to cardiac disease.

We think that HD treatment per se in patients with preexisting cardiopathy can induce serious arrhythmias even without digitalis treatment, but their contribution to mortality does not seem to be important.

isting cardiac disease in the induction of arrhythmias during renal replacement therapy. *Nephron* 59:356–360 (1985). Quereda, C; Palma, J.; Matesanz, R.; Marcén, R.; Asin, E.; Onaindia, J.; Ortuño, J.: Continuous EKG monitoring in hae-modialysis patients. *Artif. Organs* 5:suppl. 650–653 (1891). Lown, B.; Graboys, T.B.: Grading system for ventricular premature beats. *Cardiovasc: Med.* 2:219–223 (1977).

References