



LETTERS TO THE EDITOR

The NT-proBNP: A useful marker of cardiac dysfunction in chronic hemodialysis patients



NT-proBNP: un marcador útil de la disfunción cardíaca en pacientes en hemodiálisis crónica

To Editor:

Brain natriuretic peptide (BNP) and N-terminal proBNP (NT-proBNP) are useful biomarkers in the management of heart failure, stable coronary artery disease and acute coronary syndrome because of their relevant prognostic information. In patients on chronic hemodialysis treatment (HD) these biomarkers are often elevated due to cardiac dysfunction but in recent years these molecules have been also associated with fluid overload.^{1,2} We report our experience on this topic. During 24 months we studied 47 outpatients (28M/19F, mean age 69 years, median dialysis vintage 4 years) who attended for thrice weekly standard bicarbonate HD in Palermo, Italy. NT-proBNP was measured by an electrochemiluminescence immunoassay (Elecsys 2010 Roche Diagnostic, analytic range 5–3500 pg/ml). During the observation period, blood samples were taken from the inlet blood lines immediately before the onset of dialysis session. We investigated the correlation between NT proBNP and cardiovascular diseases. All patients were studied by echocardiography; we detected left ventricular hypertrophy in 72.4% of the subjects with a mean left ventricular ejection fraction of 55%. During the observation period, 18 patients died. In these subjects, the mean value of NT-proBNP was 23,931 pg/ml but in the 13 patients who died from cardiovascular causes, the mean value was considerably higher (58,638 pg/ml). Analyzing all subjects (alive at the end and died during the observation period) the mean value of NT-proBNP was 7643 pg/ml at the beginning and increased to 16,952 pg/ml at the end of study period. We consider this trend as the result of multiple

elements harmful to the cardiovascular system and not only for impaired renal clearance.

In conclusion, NT-proBNP provides important information on cardiac dysfunction of dialysis patients. This biomarker is also a predictor of cardiovascular mortality in both HD and PD patients. In the family of natriuretic peptides, NT-proBNP seems to be the best predictor of clinical outcome and should be a part of the routine for cardiovascular risk assessment in these subjects.

Conflict of interest

The authors have declared that no conflict of interest exists.

References

1. Snaedal S, Qureshi AR, Carrero JJ, Heimbürger O, Stenvinkel P, Bárány P. Determinants of N-terminal pro-brain natriuretic peptide variation in hemodialysis patients and prediction of survival. *Blood Purif.* 2014;37:138–45.
2. Yilmaz Z, Yildirim Y, Aydin FY, Aydin E, Kadiroglu AK, Yilmaz ME, et al. Relationship between fluid status as assessed by bioimpedance analysis and NT-pro BNP, blood pressure and left ventricular mass index in hemodialysis patients. *Clin Ther.* 2014;165:e52–8.

Gioacchino Li Cavoli^{a,*}, Silvia Passanante^b,
Onofrio Schillaci^a, Carmela Zagarrigo^a, Franca Servillo^a,
Tancredi Vincenzo Li Cavoli^a, Mattia Palmeri^a, Ugo Rotolo^a

^a *Nephrology-Dialysis Department, Civico and Di Cristina Hospital, Palermo, Italy*

^b *Clinical Pathology, Civico and Di Cristina Hospital, Palermo, Italy*

* Corresponding author.

E-mail address: gioacchinolicavoli@libero.it (G.L. Cavoli).

<http://dx.doi.org/10.1016/j.dialis.2014.10.001>