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INTRADIALYTIC VARIATION OF NT-proBNP – EARLY MARKER FOR LEFT VENTRICULAR SYSTOLIC DYSFUNCTION

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Objectives:

Several studies have proved that, in dialysis population, increased NTproBNP is predictive for various cardiovascular events (CVE). Few researches have investigated the effect of intradialytic variation of NTproBNP on CVE occurrence. Objective of the present study was to highlight the long-medium consequences of intradialytic variations of NTproBNP on CVE.

Methods:

79 ESRD patients performing chronic HD for more than 6 month, all on high-flux HD membranes, were included in the study; at the moment of inclusion, all patients were free of cardiovascular (CV) disease, proved by lack of symptoms, LVEF> 50% on ultrasound and normal ECG. Presence of LV hypertrophy was not an exclusion criteria. NT-proBNP was measured with an automatic analyzer before and after the first HD session in the week for a period of 1 year (52 measurements). In order to remove the effect of postdialysis hemoconcentration, intradialysis changes of NTproBNP were calculated in relation to the parallel changes of hematocrit. The variations of NTproBNP during the dialysis sessions were classified as follows: type A = increase of NTproBNP after HD sessions or decrease with less than 10% than predialysis value; type B= decrease of NTproBNP between 10-20% than predialysis value: type C – decrease of NTproBNP with more than 20% than predialysis value. The following CVE were noted during the study: abnormal ECG needing coronarography, LV systolic dysfunction with LVEF< 40%, arrhythmias. Rate of CVE was recorded in each type of NTproBNP intradialytic variation. Occurrence of symptoms suggestive for circulatory congestion in the absence of reduced LVEF was not recorded as CVE.

Results:

Only 61 patients were able to be included in one of the variation type described; a random variations in the others individuals was present, with significant interdialytic and intradialytic variation of NT proBNP. The 61 patients were classified: type A – 27 pts; type B – 20 pts, type C – 14 pts. After 1 year of study, it was revealed a significant more LVSD in type A when compared with type B and C: 14 pts (51.85%) versus 6 pts (30%)-type B, and 4 pts(28.57%)-type C, $p<0.001$). Arrhythmias and need for coronarography exams were recorded more frequent also in type A (8 pts - 29.63%, and 6 pts -22.22% respectively), but statistically insignificant. 4 deaths were recorded during the study, 2 in type A pts, and 2 in type B pts respectively.

Conclusions:

Intradialytic variations of NTproBNP could be used for early CV risk stratification in HD patients. In our study failure of decrease or increase of NTproBNP after dialysis sessions was accompanied by increased rate of LV systolic dysfunction.

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