IMPACT OF HEMODIAFILTRATION ON THE CONCENTRATION OF SOLUBLE ST2 AND NT-PROBNP IN SERUM SAMPLES OF THE PATIENTS WITH END-STAGE RENAL DISEASE

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OBJECTIVES

NT-proBNP is an important marker for evaluating and monitoring patient with heart failure (HF). According to revised ACCF/AHA Guidelines, soluble ST2 (sST2) is an HF risk stratified with growing importance in the prediction of a cardio-vascular (CV) and life-threatening events. End stage renal disease (ESRD) is a risk factor for the development of cardiac disease. Therefore would be important to have an independent marker for monitoring/predict deterioration of the disease state and CV-life-threatening events in ESRD patients. This is the first study to evaluate the impact of hemodiafiltration (HDF) on sST2 concentration.

METHODS

Blood samples were obtained from 55 ESRD patients (30 men and 25 women) by venipuncture before and after HDF during regular visits on Department of Dialysis. Patients were treated with the F5008 Dialysis machines (Fresenius Medical Care) and assigned to
high-flux membranes.
After adequate centrifugation, the serum samples were stored at -80°C until analysis. sST2 and NT-proBNP were analysed from the same serum samples.
sST2 concentrations were measured by using a high-sensitivity sandwich monoclonal immunoassay (Presage sST2 assay; Critical Diagnostics, San Diego, California).
NT-proBNP serum concentration were determined using one-step sandwich chemiluminescent immunoassay based on LOCI® technology (Dimension Vista® System, Siemens Healthcare Diagnostics Inc., U.S.A.).

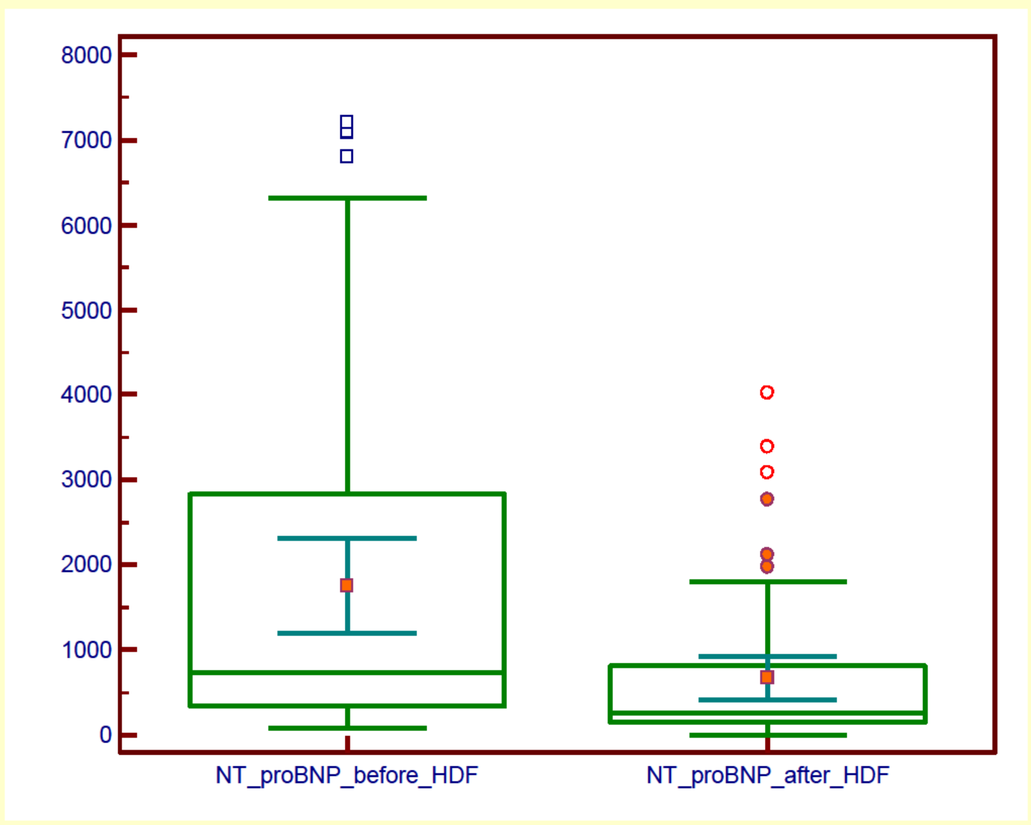

Figure 1: *Difference between NT-proBNP measured concentrations before and after HDF*

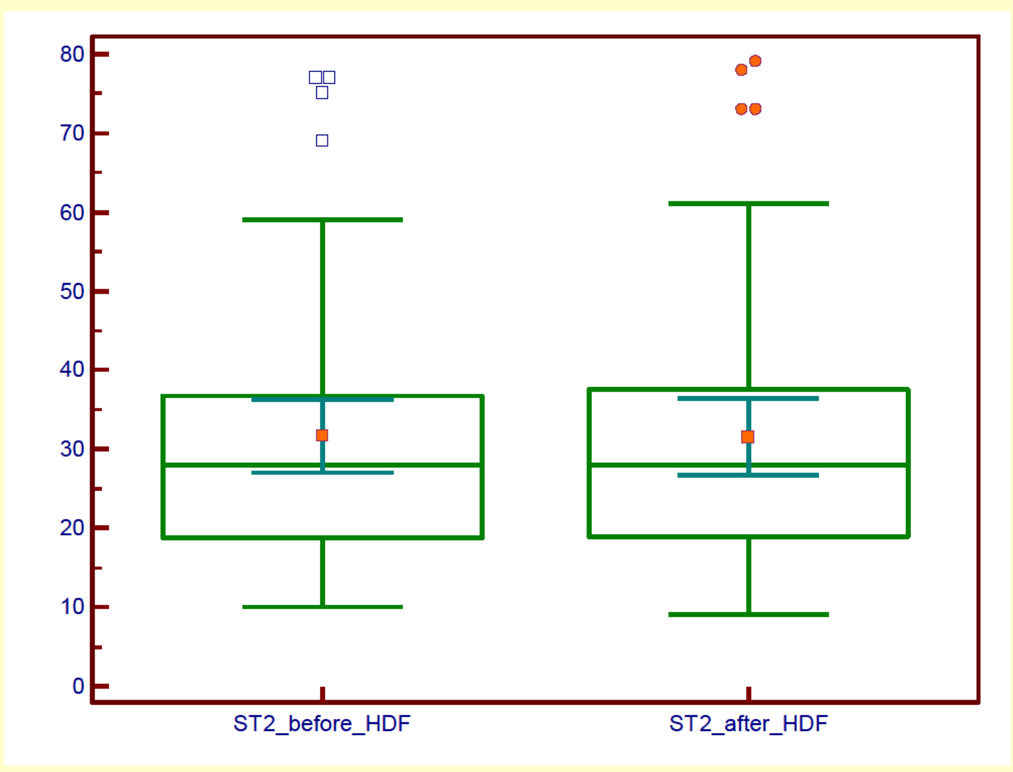

Figure 2**:** *Difference between sST2 measured concentrations before and after HDF*

RESULTS

The mean NT-proBNP before and after HDF was 1553 (95% CI=1108-1999) and 667 (95%CI=418-916) pg/mL respectively; with the statistically significant mean diference between measured values before/after HDF: -886 (95%CI=-1140 to -631; P < 0.0001). (*Fig.1)*

The mean sST2 before and after HDF was 31.6 (95%CI=27.0-36.3) and 31.6 (95%CI=26.8-36.4) ng/mL respectively. The mean diference between measured values before/after HDF for sST2 was statistically non-significant: -0,057 (95%CI=-1.15 to 1.03; P=0.9173). *(Fig.2)*

CONCLUSIONS

We found statistically significant difference between measured values of NT-proBNP before/after HDF, whereas for sST2 this difference was not statistically significant.

According to our results, HDF has no influence on the level of sST2.

Therefore would be this characteristic of sST2, opposed to NT-proBNP, important for monitoring the patient with ESRD on HD for the risk assessment of development the CV diseases and CV-life-threatening events.

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