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THE PROGNOSTIC SIGNIFICANCE OF MYOCARDIAL DYSFUNCTION (MD) BIOMARKERS IN PATIENTS WITH CHRONIC MYELOID LEUKEMIA (CML) ON TYROSINE KINASES INHIBITORS (TKI) THERAPY

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INTRODUCTION

NT-proBNP and suppression of tumorigenicity 2 (ST2) are used to predict the course of heart failure (HF). Meanwhile prognostic value for HF outcome of NT-proBNP is diminished in patients with anemia, lung or kidney diseases.

AIM

To study the prognostic significance of MD biomarkers in CML patients.

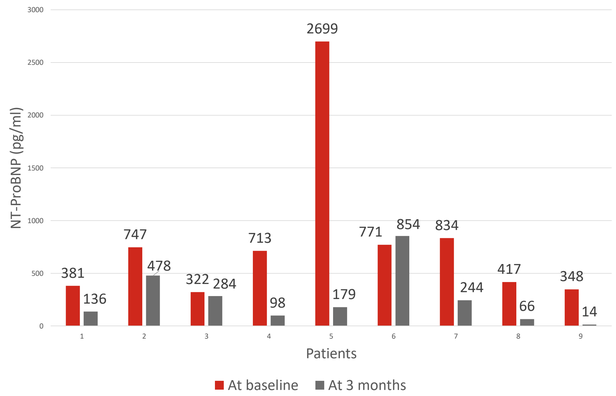
METHOD

48 patients in first chronic phase CML, failure 1-3 previous TKIs, without history of HF and kidney diseases (men - 50%; median age was 46 years) were included before the start of subsequent TKI. At baseline all patients underwent echocardiography (EchoCG) and were examined for complete blood count (CBC) and NT-proBNP level; ST2 was evaluated retrospectively from frozen samples at baseline in 28 (58%) patients. After 3 months of therapy NT-proBNP and CBC was performed in all patients, whereas ST2 and EchoCG were evaluated in 16 (33%) in 30 (63%) patients.

RESULTS

The level of NT-proBNP was increased (>300 pg/ml) in 9/48 (19%) patients with median level 713 (348-2699) pg/ml. Patients with high (group 1) vs normal (group 2) level of NP-proBNP were slightly older (51 vs 42 years) and had more longer history of CML (132 vs 75 months) with no difference in gender ration. One patient in each group had slightly low (<50%) left ventricular ejection fraction (LVEF). The average level of white blood cells (WBC) and platelets was significantly higher and the average level of hemoglobin was much lower in Group 1 vs Group 2 (Tab.1). Among patients in Group 1 vs Group 2, 44% vs 15% patients experienced anemia ≥2 grade and 56% vs 36% patients had high WBC, respectively, All patients from group 1 had high WBC or platelets or anemia at least 1 grade. At baseline, ST2 elevation (>35 mg/l) presented in 5/28 (18%) patients with median level 39 (37-55) mg/l – 1/4 (25%) and 4/23 (17%) in Group 1 and Group 2, respectively. The level of hemoglobin and WBC did not differ in patients with high or normal ST2, whereas the level of platelets was higher in patients with high ST2. At 3 months TKI therapy all 9 (100%) patients with initially elevated NT-proBNP achieved complete hematological response (CHR) and anemia resolution up to ≤1 grade. Elevated NT-proBNP persisted in 2/9 (22%) patients with pulmonary hypertension (PH) and initially low LVEF. At this time point, ST2 levels remained elevated in 3/3 of examined patients –all of them with CHR achievement and anemia resolution up to ≤1 grade. None of them had elevated level of NT-proBNP, low LVEF or other cardiovascular diseases.

Table 1. Dynamics of NT-proBNP in patients with an initially high level of the parameter (baseline and in 3 months)



CONCLUSIONS

In our observation, NT-proBNP reflected CML activity (high WBC or platelets and/or anemia) rather than HF/MD. It seems that it should not be used as an isolated marker of HF/MD in CML patients with active disease. In regards to ST2, more data is needed to evaluate its prognostic value for MD/HF in CML patients.

REFERENCES

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