N-TERMINAL PRO-BRAIN NATRIURETIC PEPTIDE – AN EARLY INDEPENDENT PREDICTOR OF ANTHRACYCLINE-INDUCED CARDIOMYOPATHY

Alina Mihaela Pasucu, Alina Bisoc, Mariana Rădoi
“Transilvania” University of Brasov – Faculty of Medicine, ROMANIA

INTRODUCTION AND OBJECTIVES:
Early prediction of anticancer therapy cardiotoxicity is essential for applying proper preventive and supporting therapeutic strategies. Aim: to evaluate plasma N-terminal fragment of pro-brain natriuretic peptide (NT-proBNP) related to cardiac dysfunction assessed by transthoracic 2D echocardiography (2D-TTE) in patients with cancer and early onset asymptomatic anthracycline-induced cardiomyopathy (AIC).

METHODS:
Prospective study of 68 patients with cancer treated with anthracyclines, followed up for 6 months. Diagnosis of AIC was set at 6 months by the decrease of left ventricular ejection fraction (LVEF) below 50% or with more than 10 units or 20% from baseline. NT-proBNP and 2D-TTE were assessed at enrolment, and thereafter at 3 and 6 months.

RESULTS:
Fifteen (22.1%) patients developed AIC at 6 months of anthracycline treatment (group 1), and 53 (77.9%) patients did not evolve with AIC (group 2).
At 3 months, NT pro-BNP was significantly higher in patients from group 1 compared to group 2 [121.0 (119.8; 140.8) pg/mL vs. 97.7 (75.5; 111.7) pg/mL, \( P = 0.0001 \), values expressed as median (25th; 75th percentiles)].
Left ventricular (LV) diastolic dysfunction was significantly more frequent in group 1 (93.3%) vs. group 2 (37.7%), \( P = 0.0002 \).
NT-proBNP at 3 months proved accurate in predicting asymptomatic AIC at 6 months [area under the receiver operating characteristic curve (AUC) = 0.845, 95% Confidence Interval (CI): 0.735-0.954, \( P=0.0001 \)]. New-installed diastolic dysfunction at 3 months had a sensitivity of 60 %, and a specificity of 77% in predicting AIC at 6 months (Figure 1).
NT-proBNP assessed at 3 months above a cut-off = 118.5pg/mL was an independent predictor of AIC at 6 months.

CONCLUSION:
Plasma NT-proBNP at 3 months of anthracycline therapy proved to be an early independent predictor of asymptomatic anthracycline-induced cardiomyopathy.

REFERENCES (Selective):