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Title: The prognostic value of elevated levels of troponin I (Tn I) and heart-type fatty acid binding protein (H-FABP) in hospitalized COPD patients with acute respiratory failure (ARF)

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Body: Aim: To evaluate the diagnostic and prognostic value of heart injury biomarkers (H-FABP and Tn I) in COPD patients with ARF. Methods: We enrolled 80 hospitalized patients with COPD (65,6±18,9 years, PaO₂ 53.8±7.2 mm Hg). All patients underwent a complex diagnostic investigation including chest X-ray, blood gases, echocardiography, measurement of serum Tn I, H-FABP, BNP-fragment. Results: The main causes of ARF were bacterial infection (BI)-43,7%, pneumonia-32,5%, acute decompensation of chronic heart failure (ADCHF)-12,5% and acute myocardial infarction (AMI)-11,3%. The H-FABP levels >1600 pg/mL were in 92.5% of all cases. Patients with AMI had the higher levels of H-FABP than patients with BI (9948,2 [4166,7-25000] vs 3720,0 [2620,1-5553,3] pg/mL, p<0,05), there were no significant differences between other groups. The Tn I levels were elevated (>0,5 ng/mL) in 21,3% of all cases without significant differences between groups. BNP-fragment levels were higher in patients with pneumonia, ADCHF, AMI than in patients with BI (967,7 [453,7-2916,6], 2458,1[960,5-4869,2], 1939,6[982,2-2361,1] vs 463,7[306,8-1013,2] fmol/mL, p<0,05 for all, respectively). The areas under ROC curve for the prediction of hospital mortality were increased for BNP-fragment (0,827), for H-FABP (0,809). Survival was worse in patients with elevated Tn I >0,5 ng/mL than in patients with Tn I <0,5 ng/mL (log-rank test, p<0.01). Conclusion: In COPD patients with ARF the serum levels of Tn I and H-FABP were significantly elevated without documented acute coronary syndrome and were the strong predictors for all-causes hospital mortality.