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The determinants of deleterious effects of diabetes on myocardium

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Aim: Early discovery of diabetic heart disease is a dignified mission. Classic echocardiographic method is not sensitive to detect subclinical early LV systolic dysfunction. Early deleterious effects of DM on LV systolic function appeared longitudinally by speckle tracking. We aimed to uncover the determinants of deleterious effects of DM on the myocardium using echocardiographic indices, considering the duration of DM as well as the state of DM control.

Methods: 52 diabetic patients were enrolled in two groups (group I; uncontrolled DM with HbA1c \geq 6.5% and group II; controlled DM with HbA1c $<$ 6.5% inside each group); we divided them according to the duration of DM into $>$ 5 years or $<$ 5 years DM.

Results: Global longitudinal strain (GLS); it was impaired more in group I more than group II as there was a highly significant difference between both groups; -15.5 2.8% in-group I while it was -19.06 2.35% in-group II ($t=-4.78$, $p=0.000$). When we compared the GLS according to chronicity of DM; GLS was also impaired more with DM chronicity as there was significant difference between those with DM $<$ 5 years duration (-19.3 2.27%) and those with DM $>$ 5 years (-15.7 2.8%). ($t=8.9$, $p=0.05$).

Conclusion: The duration of DM is strongly correlated with reduction of GLS and elevation of LV filling pressure. Poor glycemic control leads to reduction in GLS which is associated with preclinical LV dysfunction and elevated LV filling pressure.

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Does N-terminal pro-brain natriuretic peptide level predict prognosis of acute pulmonary embolism?

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Background: Patients with acute pulmonary embolism (PE) have a high risk of death. N-terminal pro-brain natriuretic peptide (NT-pro BNP) has emerged as a biomarker for risk assessment in acute PE.

Aim: Aim of this study is to detect in hospital prognostic value NT-pro BNP in patients with acute PE.

Methods: 64 patients with acute PE were subjected to ECG, laboratory tests (D-dimer, troponin I, NT-pro BNP), Doppler ultrasound for the venous system of lower limbs, echocardiography and 64 multi-slices CT pulmonary angiography.

Results: Patients were divided into two groups: Group I (22) patients with normal NT-pro BNP ($<$ 300 pg/ml), and group II (42) patients with elevated NT-Pro BNP. Group II had higher incidence of heart failure (28.6% vs. 4.6% $P=0.025$), impaired kidney function (creatinine 1.7 ± 0.6 vs. 1.1 ± 0.2 , $P=0.018$) and cardiogenic shock (26.2% vs. 0% $P=0.014$) but lower incidence of chest pain (21.4% vs. 45.5% $P=0.04$) and lower LV ejection fraction ($51.3\pm 16.9\%$ vs. $67.3\pm 12.8\%$ $P=0.043$) compared to group I. Group II had higher treatment with thrombolytic therapy (35.7% vs. 9.1%, $P=0.021$) and positive inotropic (35.71% vs. 4.55%, $P=0.006$), higher need for mechanical ventilation (26.2% vs. 4.55%, $P=0.04$), longer hospital stay (19.5 ± 10.3 vs. 5.3 ± 4.5 , $p=0.001$) and higher mortality (19.05% vs. 0.0% $P=0.042$) than group I.

Conclusion: Elevated NT-pro BNP levels in patients with PE are associated with worse short term prognosis in terms of higher morbidity and mortality and it could be used as a valuable prognostic parameter and good indicator for the need of more aggressive therapy.

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