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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: We aimed to detect in hospital prognostic value NT- pro BNP in patients with acute PE.

Methods: 64 patients with acute PE were studied. All patients were subjected to ECG, laboratory tests (D-dimer, troponin I, NT-pro BNP), Doppler ultrasound for the venous system of lower limbs, transthoracic 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%±16.9% vs. 67.3%±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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Biography

Abdelaziz Gomaa is a Consultant Interventional Cardiologist at Dallah Hospital Riyadh, KSA and a Lecturer of Cardiology at Zagazig University, Egypt. He is pursuing certified level II training in Cardiac CT (Harefield-London Cardiac CT course) in addition to interventional cardiology practice. His work in Clinical Cardiology gave him good overview of different cardiology emergencies and urgencies.

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Table 2. Clinical and laboratory data of the studied population.

Variable	Group I 22	Group II 42	p-value
Dyspnea n (%)	19 (86.36%)	40 (95.2%)	0.44
Chest pain n (%)	10 (45.45%)	9 (21.4%)	0.04
Hemoptysis n (%)	3 (13.63%)	5 (11.9%)	0.84
Syncope n (%)	2 (9.09%)	7 (16.67%)	0.65
Cough n (%)	2 (9.09%)	4 (9.25%)	0.69
DVT n (%)	4 (18.18%)	7 (16.6%)	0.84
Tachypnea n (%)	12 (54.54%)	36 (85.7%)	0.006
Heart rate (mean ± SD)	99.5 ± 21.4	105.3 ± 35.2	0.36
Systolic blood pressure (mean ± SD)	130 ± 22.5	120.5 ± 32.6	0.19
Cardiogenic shock (Systolic blood pressure <90 mmHg) n (%)	0 (0%)	11 (26.2%)	0.014
D-dimer (mean ± SD)	1936.6 ± 415.7	2317.9 ± 678.4	0.06
Troponin I (mean ± SD)	0.31 ± 0.5	1.1 ± 0.9	0.03
NT-pro BNP (mean ± SD)	179 ± 68	1843 ± 538	0.0001
Serum creatinine (mean ± SD)	1.1 ± 0.2	1.7 ± 0.6	0.018