

Body composition in Heart failure patients with anemia.

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Background: Heart failure (HF) patients with anemia have worse prognosis. It could be resulted of kidney disease, excessive cytokine production or increased plasma volume. Hemodilution may occur in patients appearing euvoletic on clinical examination. So, detection of hypervolemic status before clinical signs appeared is very important. Whether hemodilution or true anemia, are related with worse cardiac function was the objective of this cross sectional study.

Methods: We studied 87 patients with systolic HF (NYHA I-III): with anemia (n=5) and without anemia (n=77). Body composition was measured using bioelectrical impedance tetra polar and multi frequency equipment (**BodyStat QuadScan 4000**). Echocardiography variables were also obtained. Anemia was defined as a hemoglobin < 11.5 mg/l.

Results: Anemia prevalence was 6.1% (5/82). Mean body mass index was 23.3 ± 5.8 in anemic patients vs. 27.3 ± 5.5 in non-anemic patients. In the echocardiography variables we found that the left atrium (AI): 50.93 ± 9.6 vs. 45.44 ± 7.1 , $p = 0.035$; AI/Aorta (Ao) 1.98 ± 0.3 vs. 1.44 ± 0.3 , $p < 0.0001$; end diastolic posterior wall 12.41 ± 5 Vs 10.24 ± 2.2 , $p = 0.27$; pulmonary arterial pressure 77.7 ± 8.0 vs. 57.1 ± 16.3 $p = 0.01$ were significantly greater in patients with anemia compared with patient without anemia. Ejection fraction 32.5 vs. 32.12 was not different between the groups. Percentage of total body water 56.4 ± 1.6 , vs 52.4 ± 0.4 and percentage of extracellular body water 25.3 ± 0.7 vs 23.5 ± 0.18 were statistically different between the groups even after adjusted by gender, BMI and renal failure.

Conclusion: Hemodilution is common in HF patient with severe cardiac damage which suggest that the overloud volume may be reflect of the most important adrenergic system stimulation specially when they develop simultaneously anemia, contributing to a worse quality of life and outcome.