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Letter to the Editor

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Acute Heart Failure in an Internal Medicine Department: A Prospective Study

Rita Reis Correia [1]*, Pedro Leite Vieira [1], Marisa Linhares [1], Fábia Cruz [1], Sandra Martin [1], Maria Eugenia André [1]

[1] Unidade Local de Saúde de Castelo Branco, PORTUGAL
***Corresponding Author:** rt_correia@hotmail.com

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ABSTRACT

Prospective, cross-sectional study of observation of all patients admitted to the Internal Medicine service for one year, adults, with primary or secondary diagnosis of acute heart failure (HF). The aim of the study was to characterize this population. 118 patients (mean age 84 ± 7.9 years). 81.4% had decompensated chronic HF. On admission: 84.6% were class III and IV (NYHA); 60.5% had preserved ejection and diastolic dysfunction. Those with functional class III-IV had lower ejection fractions (59.56 vs 65.97, p <0.01). Infection was the most frequent cause of exacerbation, except for HF "again". The ID correlates independently of the presence of anemia with mortality, as well as the clinical severity and LVEF (p <0.05). The overall mortality was 52.2%. Mortality is higher in those with a previous history of cardiovascular disease. Patients with HF "again" had similar in-hospital mortality, but less after discharge. Thus, patients admitted to an internal medicine service are mostly elderly women, with pluripathology, with chronic acute HF due to infection and with high morbidity. Therefore, it is extremely important to compensate this patient and monitor closely after discharge.

Keywords: acute heart failure, mortality, ventricular ejection, anemia, iron deficit

Dear Editor,

The worldwide prevalence of heart failure (HF) is estimated at 1-2% and 6-10% over 65 years. In developed countries, acute HF is responsible for 1-4% of hospitalizations, 25% of readmissions in the first month and 27% of mortality at six months [1].

Acute HF is characterized by abrupt presentation of symptoms, with the need for urgent medical intervention. If the patient has no history or symptoms of HF, it can be said to have a "de novo" HF [2]. On the contrary if the patient already has a previous diagnosis of HF whose symptoms worsen acutely it is called "acute chronic" [2,3].

In Portugal, in addition to cardiology, internal medicine departments are also responsible for assisting patients with acute HF. However, will these patient groups be the same? We present a study who had a main objective to characterize this population. This is a prospective, cross-sectional observation study of all patients admitted into Internal Medicine service, adults, with primary or secondary diagnosis of acute heart failure, from April 2017 to April 2018. The protocol was approved by the institution's ethics committee. Terminally ill or palliative patients were excluded. All analyzes were performed with the Statistical Package for the Social Sciences (SPSS) (version 21.0, SPSS Inc. Chicago, IL, United States). The tests were paired and p values <0.05 were considered statistically significant.

A total of 118 patients were included, with a mean age of 84.5 years, 59.3% female. The average length of stay was 12 days. The most frequent comorbidities were atrial fibrillation (78.8%), arterial hypertension (70.3%) and diabetes mellitus (39%). Most had 3 or more comorbidities. 81% of the sample had acute chronic HF, whose etiology was arterial hypertension. 84.6% of the sample had NYHA functional class III or IV and 68.6% had a warm and wet hemodynamic profile (B) at admission.

The patients with acute chronic HF were treated on an outpatient basis: furosemide (66,7%); spironolactone (17.7%); Angiotensin-converting-enzyme inhibitors or Angiotensin II receptor blockers (65,6%) and Beta blocker (58.3%).

Most had HF with preserved LVEF. Diastolic dysfunction was assessed with echocardiography and revealed: 5 patients had TAPSE <17mm; The average LAVI was 60.5 ± 61ml/m^2 and was superior than 34mL/m^2 in 63% of patients; 75% of men and 39% of women had abnormal LVMI; the E/e´ ratio was only calculated in 11 patients, of which 72% presented superior than 13.

The most frequent cause of exacerbation (50%) was infectious. HF "de novo" has a less pronounced prevalence of infection as a cause of exacerbation, with an increase in cases of acute ischemia and dysrhythmias.

Anemia and iron deficiency (ID) had important role. Anemia was present in 37.1% of men and 66.7% of women. 52.7% of the sample had ID. There is an association between anemia and ID (p<0.05). Patients with lower transferrin saturation (TS) (below 20%) had NYHA Classes III and IV and lower LVEF (p<0.05). Serum iron and TS showed an inverse correlation with mortality (p<0.05). These results agree with the latest European guidelines and in numerous works: ID correlates

independently of the presence of anemia with mortality, as well clinical gravity and LVEF [3,10,11].

During hospitalization 11 patients died (9.3%). Mortality after one year of discharge was 41.1% and readmission rate was 28%, over the same period. The overall mortality of the sample was 50.1%. These results are expected. Mortality is higher in those with a previous history of cardiovascular diseases. As is known from the natural history of HF, the long-term prognosis is aggravated at each exacerbation [3,6,7,9].

Patients who died during hospitalization were older (88 vs 84 years, p<0.05) and had hydro electrolytic changes: hyperkalemia (p <0.05) and hypernatremia (143 vs 138 mmol/L, p<0.01), creatinine greater than 1.2 mg/L (p<0.05), increased urea (141 vs 71mg/dL, p<0.05) and higher CRP (111 vs 48 mg/L, p<0.01). Hyperkalemia has been correlated with mortality, possibly associated with dysrhythmias. Its presence in patients with HF is not new, the EAHFE study showed that hyperkalemia in ICA has a high prevalence [7,8,16].

No correlation was found between mortality and cause of exacerbation, BNP value or LVEF.

Patients with “de novo” HF had similar in-hospital mortality, but lower after discharge. They had lower readmission (p<0.05). This fact is similar to other studies, for example, the RICA study in Spain whose three-month mortality rate was 5.2% versus 13% in the acute chronic [2]. Patients with HF “de novo” had a lower readmissions, similar to NOVICA study, in Spain, in 2019 [5].

Thus, patients admitted to an internal medicine service are mostly elderly women, with pluripathology, with acute chronic HF due to infection, and have a high morbidity. Therefore, it is extremely important compensated this patient and closely follow-up after discharge.

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