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ORIGINAL ARTICLE

Characterization of acute heart failure hospitalizations in a Portuguese cardiology department

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KEYWORDS
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Length of stay;
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Abstract
Introduction and Aims: We describe the clinical characteristics, management and outcomes of patients hospitalized with acute heart failure in a south-west European cardiology department. We sought to identify the determinants of length of stay and heart failure rehospitalization or death during a 12-month follow-up period.
Methods and Results: This was a retrospective cohort study including all patients admitted during 2010 with a primary or secondary diagnosis of acute heart failure. Death and readmission were followed through 2011.

Of the 924 patients admitted, 201 (21%) had acute heart failure, 107 (53%) of whom had new-onset acute heart failure. The main precipitating factors were acute coronary syndrome (63%) and arrhythmia (14%). The most frequent clinical presentations were heart failure after acute coronary syndrome (63%), chronic decompensated heart failure (47%) and acute pulmonary edema (21%). On admission 73% had left ventricular ejection fraction <50%. Median length of stay was 11 days and in-hospital mortality was 5.5%. The rehospitalization rate was 21% and 24% at six and 12 months, respectively. All-cause mortality was 16% at 12 months. The independent predictors of rehospitalization or death were heart failure hospitalization during the previous year (Hazard ratio — HR — 3.177), serum sodium <135 mmol/l on admission (HR 1.995) and atrial fibrillation (HR 1.791). Reduced left ventricular ejection fraction was associated with a lower risk of rehospitalization or death (HR 0.518).
Conclusions: Our patients more often presented new-onset acute heart failure, due to an acute coronary syndrome, with reduced left ventricular ejection fraction. Several predictive factors of death or rehospitalization were identified that may help to select high-risk patients to be followed in a heart failure management program after discharge.

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PALAVRAS-CHAVE
Insuficiência cardíaca aguda;
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Tratamento;
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Rehospitalização;
Mortalidade

Caracterização das hospitalizações por insuficiência cardíaca aguda num serviço de cardiologia português

Resumo
Introdução e objetivos: Dada a escassa informação relativa aos internamentos por insuficiência cardíaca aguda em serviços de Cardiologia portugueses, procedemos à sua caracterização. Pretendemos identificar os determinantes de maior duração de internamento e de rehospitalização ou morte aos 12 meses.
Métodos e resultados: Realizámos um estudo de cohort retrospetivo, incluindo os doentes admitidos em 2010 com diagnóstico primário ou secundário de insuficiência cardíaca aguda. A ocorrência de morte ou rehospitalização foi acompanhada durante 2011.

Do total de 924 hospitalizações, 201 (21%) apresentavam insuficiência cardíaca aguda, sendo o primeiro episódio em 107 (53%) das mesmas. Os principais fatores precipitantes foram síndrome coronária aguda (63%) e arritmia (14%). As apresentações clínicas mais comuns foram insuficiência cardíaca no contexto de síndrome coronária aguda (63%), insuficiência cardíaca crónica descompensada (46%) e edema pulmonar agudo (21%). Na admissão, 73% tinham fração de ejeção ventricular esquerda < 0,50. A duração mediana de internamento foi 11 dias e a mortalidade intra-hospitalar foi 5,5%. A taxa de rehospitalização aos 6 e 12 meses foi 21% e 24%, respetivamente. A mortalidade por todas as causas, aos 12 meses, foi 16%. Os factores preditores de rehospitalização ou morte foram hospitalização por insuficiência cardíaca aguda no ano anterior (*Hazard ratio* – HR – 3,177), sódio sérico < 135 mEq/L na admissão (HR 1,995), fibrilhação auricular (HR 1,791). Fracção de ejecção ventricular esquerda deprimida na admissão associou-se a menor risco de rehospitalização ou morte (HR 0,518).
Conclusões: Os nossos doentes apresentavam mais frequentemente insuficiência cardíaca aguda de novo, com fração de ejeção ventricular esquerda deprimida, no contexto de síndrome coronária aguda. Os vários fatores preditores de mortalidade ou rehospitalização identificados poderão contribuir para selecionar os doentes de alto risco que justificam acompanhamento especializado numa clínica de insuficiência cardíaca.

Introduction

Acute heart failure (AHF) is a major public health concern because of its increasing prevalence and associated high morbidity, mortality and costs.[1–5] Despite being one of the most frequent reasons for hospitalization in western countries, it has received much less attention than chronic heart failure (CHF), and large-scale studies specifically addressing AHF are relatively scarce.[6,7]

AHF is associated with a high rate of rehospitalization but little is known regarding the most relevant predictive factors. It is therefore important to develop appropriate predictive models that might help to appropriately stratify AHF patients and improve their management and follow-up.[8]

Moreover, although several studies have been conducted in Europe and the USA on the clinical characteristics, treatment and outcome of AHF patients, little information is available on this subject in Portugal.[9]

In the present study we describe the clinical characteristics, hospital management and outcomes of AHF patients admitted to a Portuguese cardiology department, and present a predictive model for readmission or death at 12 months in this population.

Objectives

The primary objective of this study was to describe the clinical characteristics, hospital management and outcomes of patients hospitalized with AHF.

The secondary objectives were:

- to compare patients with AHF and acute coronary syndrome (ACS) as the precipitating factor vs. patients with AHF and no ACS;
- to compare drug prescriptions on admission and at discharge;
- to identify factors associated with longer hospital length of stay (LOS);
- to identify risk factors for heart failure (HF) rehospitalization or death.

Methods

Study description

This was a hospital-based observational retrospective cohort study, conducted at the Cardiology Department of Hospital de S. João, Porto, Portugal. Demographic, clinical and follow-up data were collected between February 1, 2011 and December 31, 2011, ensuring a minimum follow-up of one year for all patients.

Inclusion criteria

All patients admitted to the cardiology department between January 1 and December 31, 2010 were screened. Paper-based and computerized clinical records on the 924 patients