



Revista Clínica Española

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ORIGINAL ARTICLE

Spironolactone in patients with heart failure and preserved ejection fraction[☆]



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Received 30 September 2014; accepted 14 December 2014

Available online 20 March 2015

KEYWORDS

Diastolic heart failure;
Spironolactone;
Aldosterone antagonists;
Prognosis

Abstract

Objectives: Aldosterone inhibitors have been shown to be beneficial for patients with systolic heart failure. However, the evidence from patients with heart failure and preserved ejection fraction (HFPEF) is limited. We evaluated the role of spironolactone in the prognosis of a cohort of patients with HFPEF.

Patients and methods: We analyzed the outcomes of patients hospitalized for HFPEF in 52 departments of internal medicine of the Spanish RICA registry according to those who did and did not take spironolactone. We recorded the posthospital mortality rate and readmissions at 1 year and performed a multivariate survival analysis.

Results: We included 1212 patients with HFPEF, with a mean age of 79 years (standard deviation, 7.9), (64.1% women), the majority of whom had hypertensive heart disease (50.7%). The patients treated with spironolactone, compared with those who were not treated with this diuretic, had a

[☆] Please cite this article as: Sánchez-Sánchez C, Mendoza-Ruiz de Zuazu HF, Formiga F, Manzano L, Ceresuela LM, Carrera-Izquierdo M, et al. Espironolactona en pacientes con insuficiencia cardíaca y fracción de eyección preservada. Rev Clin Esp. 2015;215:301–307.

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◇ More information about the components of RICA record is available in the [Appendix](#).

PALABRAS CLAVE

Insuficiencia cardiaca
diastólica;
Espironolactona;
Antagonistas de la
aldosterona;
Pronóstico

more advanced functional class, a higher number of readmissions (44.3 vs. 29.1%; $p < 0.001$) and a higher rate in the combined variable of readmissions/mortality (39.0 vs. 29.0%; $p = 0.001$). In the multivariate analysis, the administration of spironolactone was associated with an increase in readmissions (RR, 1.4; 95% CI, 1.16–1.78; $p = 0.001$).

Conclusions: For patients with HFPEF, the administration of spironolactone was associated with an increase in all-cause readmission, perhaps due to the higher rate of hyperpotasemia.

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Espironolactona en pacientes con insuficiencia cardiaca y fracción de eyección preservada

Resumen

Objetivos: Los inhibidores de la aldosterona han demostrado ser beneficiosos en pacientes con insuficiencia cardiaca sistólica. Sin embargo, la evidencia en enfermos con insuficiencia cardiaca y fracción de eyección preservada (ICFEP) es muy limitada. Hemos evaluado el protagonismo de la espironolactona en el pronóstico de una cohorte de pacientes con ICFEP.

Pacientes y métodos: Analizamos la evolución de los pacientes ingresados por ICFEP en 52 servicios de Medicina Interna del Registro español RICA según la toma o no de espironolactona. Se recogió la tasa de mortalidad poshospitalaria y reingresos a un año, y se realizó un análisis de supervivencia multivariante.

Resultados: Se incluyeron 1212 pacientes con ICFEP con una edad media de 79 años (desviación estándar 7,9), (64,1% mujeres), la mayoría con cardiopatía hipertensiva (50,7%). Los pacientes tratados con espironolactona, en comparación con los que no recibieron este diurético, presentaron una clase funcional más avanzada, mayor número de reingresos (44,3 vs. 29,1%; $p < 0,001$), y mayor tasa en la variable combinada de reingresos/mortalidad (39,0 vs. 29,0%; $p = 0,001$). En el análisis multivariante, la administración de espironolactona se asoció a un aumento de los reingresos (RR 1,4; IC 95%, 1,16-1,78; $p = 0,001$).

Conclusiones: En pacientes con ICFEP, la administración de espironolactona se asoció a un incremento de los reingresos por cualquier causa, tal vez en relación con la mayor tasa de hiperpotasemia.

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Background

Aldosterone inhibition is an essential part of baseline treatment of systolic heart failure (HF). Specifically, spironolactone and eplerenone have shown a clear benefit in terms of the morbidity and mortality of these patients.^{1–3} European and American guidelines have therefore recommended its use for all patients with symptomatic HF (New York Heart Association [NYHA] functional class II or higher).^{4,5}

Several studies have shown that treatment with an aldosterone inhibitor can reduce myocardial fibrosis and oxidative stress and improve the echocardiographic parameters related to diastolic myocardial function.^{6–9} Similarly, spironolactone is the first drug that has been shown to improve diastolic function and left ventricular remodeling in patients with *heart failure with preserved ejection fraction (HFPEF)*.¹⁰ However, evidence on the benefit of this therapy in HFPEF in terms of morbidity and mortality is scarce and controversial.¹¹

The aim of this study was to analyze the prescription of spironolactone and its prognostic implication over the

course of a year of follow-up in a cohort of patients with HFPEF from departments of internal medicine.

Patients and methods**Patient selection**

Patient data were collected between March 9, 2008 and January 31, 2013 from the National Heart Failure Registry (*Registro Nacional de Insuficiencia Cardiaca*, RICA)^{12–14} coordinated by the Heart Failure Workgroup of the Spanish Society of Internal Medicine (*Grupo de Trabajo de Insuficiencia Cardiaca de la Sociedad Española de Medicina Interna*). This is a multicenter prospective cohort study that includes data from 52 public and private hospitals in Spain that voluntarily joined the study. The study protocol was approved by the Ethics Committee of University Hospital Reina Sofía of Córdoba, and informed consent was obtained from all patients before their enrollment in the study, in accordance with the requirements of each hospital's ethics committee. The study included all patients hospitalized in internal

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