



Original article

Prevalence and characteristics of patients with resistant hypertension and chronic kidney disease[☆]

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ARTICLE INFO

Article history:

Received 3 March 2015

Accepted 29 April 2016

Available online xxx

Keywords:

Resistant hypertension

Prevalence

Chronic kidney disease

Diuretics

Spironolactone

ABSTRACT

Resistant hypertension (RH) is a common problem in patients with chronic kidney disease (CKD). A decline in the glomerular filtration rate (GFR) and increased albuminuria are associated with RH; however, there are few published studies about the prevalence of this entity in patients with CKD.

Objective: To estimate the prevalence of RH in patients with different degrees of kidney disease and analyse the characteristics of this group of patients.

Methods: A total of 618 patients with hypertension and CKD stages I–IV were enrolled, of which 82 (13.3%) met the criteria for RH.

Results: RH prevalence increased significantly with age, the degree of CKD and albuminuria. The prevalence of RH was 3.2% in patients under 50 years, 13.8% between 50 and 79 years and peaked at 17.8% in patients older than 80 years. Renal function prevalence was 4%, 15.8% and 18.1% in patients with an estimated glomerular filtration rate (GFR) of >60, 30–59 and <30 ml/min/1.73 m², respectively, and 8.9%, 15.9% and 22.5% for a urine albumin to creatinine ratio (UACR) <30, 30–299 and >300 mg/g respectively. In a logistic regression model, the characteristics associated with resistant hypertension were age, history of cardiovascular disease, GFR, albuminuria and diabetes mellitus. A total of 47.5% of patients with resistant hypertension had controlled BP (<140/90 mmHg) with 4 or more antihypertensive drugs. These patients were younger, with better renal function, less albuminuria and received more aldosterone antagonists.

Conclusion: RH prevalence increases with age, the degree of CKD and albuminuria. Strategies such as treatment with aldosterone receptor antagonists are associated with better blood pressure control in this group of patients, leading to reduced prevalence.

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* Please cite this article as: Verdalles Ú, Goicoechea M, García de Vinuesa S, Quiroga B, Galan I, Verde E, et al. Prevalencia y características de los pacientes con hipertensión arterial resistente y enfermedad renal crónica. Nefrología. 2016. <http://dx.doi.org/10.1016/j.nefro.2016.04.003>

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Prevalencia y características de los pacientes con hipertensión arterial resistente y enfermedad renal crónica

RESUMEN

Palabras clave:

Hipertensión resistente
Prevalencia
Enfermedad renal crónica
Diuréticos
Espironolactona

La hipertensión arterial (HTA) resistente es un problema frecuente en pacientes con enfermedad renal crónica (ERC). El descenso del filtrado glomerular (FGe) y el incremento en la albuminuria se asocian a HTA resistente, sin embargo, hay pocos estudios publicados sobre la prevalencia de esta entidad en los pacientes con ERC.

Objetivo: Estimar la prevalencia de la HTA resistente en pacientes con diferentes grados de enfermedad renal y analizar sus características.

Métodos: Se incluyó a 618 pacientes con HTA y ERC estadios I-IV, de los cuales 82 (13,3%) cumplían criterios de HTA resistente.

Resultados: La prevalencia de HTA resistente se incrementó de forma significativa con la edad, el grado de ERC y la albuminuria. La prevalencia de HTA resistente fue del 3,2% en pacientes menores de 50 años, del 13,8% entre 50 y 79 años, y alcanzó el 17,8% en mayores de 80 años. En relación con la función renal, la prevalencia fue del 4, del 15,8 y del 18,1%, en pacientes con filtrado glomerular estimado (FGe) de >60, de 30-59 y de <30 ml/min/1,73 m², respectivamente y de 8,9, 15,9 y 22,5% para índice albúmina/creatinina urinaria (UACR) < 30, 30-299 y > 300 mg/g, respectivamente. En un modelo de regresión logística las características que se asociaron con la HTA resistente fueron la edad, el antecedente de enfermedad cardiovascular, el FGe, la albuminuria y la diabetes mellitus. El 47,5% de los pacientes con HTA resistente tenían la PA controlada (<140/90 mmHg) con 4 o más fármacos antihipertensivos. Estos pacientes eran más jóvenes, con mejor función renal, menos albuminuria y recibían con más frecuencia antagonistas de la aldosterona.

Conclusión: La prevalencia de HTA resistente aumenta con la edad, el grado de ERC y la albuminuria. Estrategias como el tratamiento con antagonistas de receptores de aldosterona se asocian con un mejor control tensional en este grupo de pacientes y disminuyen su prevalencia.

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Introduction

Resistant hypertension (HTN), defined as the lack of control of blood pressure (BP > 140/90 mmHg) despite treatment with 3 or more antihypertensive drugs, including a diuretic, or BP controlled using more than 4 drugs,¹ is a common problem in patients with chronic kidney disease (CKD). Studies conducted in the general population estimate the prevalence of resistant HTN within a wide range of 10% and 30% of all hypertensive patients. The 2005–2008 National Health and Nutrition Examination Survey (NHANES) estimated that resistant HTN affects 12.3% of patients with HTN,² and according to the Spanish ambulatory blood pressure monitoring registry, the prevalence is 12.2%.³ Population studies such as the Framingham Heart Study⁴ or the NHANES have identified race, age, diabetes mellitus, cardiovascular disease and CKD as factors associated with resistant HTN.

In the study by Tanner et al., using data from patients enrolled in the Reasons for Geographic and Racial Differences in Stroke (REGARDS) study, at estimated glomerular filtration rate (eGFR) < 60 ml/min/1.73 m² and an urine albumin-to-creatinine ratio (UACR) > 300 mg/g were significantly associated with the presence of resistant HTN.⁵ Although both CKD and proteinuria have been associated with refractory HTN, there are only few studies on this group of patients and in

Spain there is no study evaluating the prevalence of resistant HTN in patients with CKD.

Our study aimed at estimating the prevalence of resistant HTN in a cohort of patients followed in outpatient nephrology clinics with varying degrees of CKD. We have evaluated the characteristics of patients with CKD and resistant HTN, and factors associated with refractoriness BP of control.

Patients and methods

Study design

Retrospective observational of 618 consecutive patients with stable HTN and CKD, stages I-IV, followed in outpatient nephrology clinics from 1 January 2012 until 31 December 2012.

Inclusion criteria: age ≥ 18 years, CKD (stages I-IV) and HTN. Exclusion criteria: hospitalisation in the 4 months prior to inclusion or refusal to participate in the study.

CKD has been defined according to the KDOQI guidelines⁶ and HTN according to the Eighth Joint National Committee report⁷ as BP > 140/90 mmHg in this group of patients with CKD or receiving treatment with antihypertensive drugs. Controlled HTN was defined as BP values < 140/90 mmHg at the clinic.

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