



REVIEW ARTICLE

## Chronic kidney disease and dyslipidaemia<sup>☆</sup>



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### KEYWORDS

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**Abstract** Chronic kidney disease (CKD) has to be considered as a high, or even very high risk cardiovascular risk condition, since it leads to an increase in cardiovascular mortality that continues to increase as the disease progresses.

An early diagnosis of CKD is required, together with an adequate identification of the risk factors, in order to slow down its progression to more severe states, prevent complications, and to delay, whenever possible, the need for renal replacement therapy.

Dyslipidaemia is a factor of the progression of CKD that increases the risk in developing atherosclerosis and its complications. Its proper control contributes to reducing the elevated cardiovascular morbidity and mortality presented by these patients.

In this review, an assessment is made of the lipid-lowering therapeutic measures required to achieve to recommended objectives, by adjusting the treatment to the progression of the disease and to the characteristics of the patient.

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In CKD, it seems that an early and intensive intervention of the dyslipidaemia is a priority before there is a significant decrease in kidney function. Treatment with statins has been shown to be safe and effective in decreasing LDL-cholesterol, and in the reduction of cardiovascular events in individuals with CKD, or after renal transplant, although there is less evidence in the case of dialysed patients.

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## PALABRAS CLAVE

Enfermedad renal crónica;  
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## Enfermedad renal crónica y dislipidemia

**Resumen** La enfermedad renal crónica (ERC) ha de ser considerada como una situación de alto e incluso muy alto riesgo cardiovascular, ya que provoca un aumento de la mortalidad cardiovascular que va incrementándose a medida que progresa la enfermedad.

Es preciso realizar un diagnóstico precoz de la ERC junto con la adecuada identificación de los factores de riesgo, al objeto de frenar su evolución a estadios más severos, evitar las complicaciones y retrasar, en lo posible, la necesidad de tratamiento sustitutivo renal.

La dislipidemia es un factor de progresión de la ERC que aumenta el riesgo de desarrollo de aterosclerosis y sus complicaciones. Su adecuado control contribuye a reducir la elevada morbimortalidad cardiovascular que presentan estos pacientes.

En esta revisión se evalúan las medidas terapéuticas hipolipemiantes necesarias para el logro de los objetivos recomendados, ajustando el tratamiento a la evolución de la enfermedad y a las características del paciente.

En la ERC parece prioritaria una intervención precoz e intensiva de la dislipidemia antes de que se produzca una disminución importante de la función renal. El tratamiento con estatinas ha demostrado ser seguro y eficaz en la disminución del cLDL y en la reducción de episodios cardiovasculares en individuos con ERC o después del trasplante renal; sin embargo, la evidencia en los pacientes dializados es menor.

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## Introduction

Chronic kidney disease (CKD) is a clinical situation generated by a gradual, progressive loss of kidney function. The significance of the CKD is conditioned not only by the progressive decline in the patient's quality of life and life expectancy as it advances to later stages, but also by an increase in cardiovascular morbidity and mortality, which is the main cause of death in these patients.<sup>1</sup> Mortality among final stage CKD patients is 30 times higher than in the general population, and it can be as much as 1000 times higher when it affects lower risk population groups, such as children and adolescents.<sup>2</sup> The prevalence of CKD is clearly increasing due to the longer life expectancy in the general population, an increase in diabetes and obesity, and the higher survival rate of patients who have presented cardiovascular episodes or who have been diagnosed with chronic renal failure.

CKD is defined as the presence of alterations in kidney structure or kidney function lasting more than three months, secondary to a progressive decrease in the number of nephrons, with a subsequent deterioration in health derived from the inability of the kidneys to perform their excretion, filtration and metabolic functions.

In its everyday clinical treatment, diagnosis, classification and aetiology, CKD is determined by a decrease in estimated glomerular filtration rate (GFR), with levels of <60 ml/min/1.73 m<sup>2</sup>, and/or the presence of albuminuria<sup>3</sup> (Table 1).

According to data from the EPIRCE study,<sup>4</sup> the prevalence of CKD in Spain is close to 10% when jointly screening for GFR and albuminuria, but this increases to 21.4% in subjects over 64 years old when screening for only GFR < 60 ml/min/1.73 m<sup>2</sup>. Age is the risk factor most related to CKD, with the early stages of kidney function loss observed in the third decade of life, and with a significant loss in kidney function after age 60 (OR 1.12 [1.10–1.14; *p* < 0.0001] for each additional year of age).

CKD is an independent risk factor of cardiovascular disease,<sup>5</sup> even in children and adolescents with less exposure to cardiovascular risk factors than adults.<sup>2</sup> Both pre-existing and newly presenting atherosclerosis in CKD patients clearly has an accelerated progression,<sup>6</sup> with the early onset of cardiovascular episodes increasing (in men < age 55 or women < age 65).<sup>7</sup> This effect seems to be related to a diffuse inflammatory pattern that persists in spite of the possibility of correcting possible trigger factors, such as bypass surgery in cases of renal artery stenosis.<sup>8</sup>

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