Reflections on chronic kidney disease with obesity-associated (CKD-WO): from an old causal relationship to an approach based on phenotyping

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Editorial

Chronic kidney disease (CKD) is a significant public health problem worldwide; the average prevalence worldwide in 2021 was between 11 and 13% [1], and mortality associated with CKD is high, and it is estimated that by the year 2040, CKD will be the fifth leading cause of death from all pathologies [2]. One of the risk factors for CKD is obesity, in addition to the classic entities known as diabetes mellitus (DM) and arterial hypertension (AHT).

Currently, obesity has crossed the limit from an isolated disease to becoming an epidemic, and its prevalence is estimated to increase by 40% in the next decade [3]. One factor that explains this growth is the increase in children with obesity. Obesity is associated with a high care burden derived from the increased risk of various pathological conditions, such as DM, hypertension, infections, osteoarthritis, and, of course, CKD [4].

The causal relationship between obesity and CKD has been known for many years. Just as there is a relationship between poverty and kidney failure, there is a relationship between poverty and obesity, considering that poverty is a common risk factor for obesity and chronic kidney disease. Reports show that up to 44% of CKD patients have obesity (21.9% class 1 obesity, 11.1% class 2 and 3 obesity) [5].

In a recent narrative review entitled "Obesity and chronic kidney disease: a look from the pathophysiological mechanisms" [6], we described the different action mechanisms that involve obesity with the onset and development of CKD, finding common pathophysiological mechanisms and uncommon ones that link obesity as a cause of CKD. This review revealed that not all patients with CKD associated with obesity (CKD-WO) are the same. Four phenotypes are established, of which three occur in patients with CKD who are not on dialysis therapy. Type 4 CKD-WO occurs in patients on dialysis, which has a phenomenon of the "J" curve, where in patients with CKD without dialysis, obesity is a risk factor. It is associated with a decrease in survival. In contrast, in patients who are on renal function replacement programs, obesity is a protective factor associated with a nutritional state that allows for reducing mortality in patients on dialysis programs [6].

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REV SEN. 2022;10(2):137-139
It is considered that patients with CKD-WO are a heterogeneous population. Therefore, we must always approach it from the perspective of phenotyping and individualization, as has been done in other metabolic pathologies, such as DM, obesity, and diabetic kidney disease (DKD), among others.

Most likely, other tools will be needed for a better understanding, for example, the use of early biomarkers, histology and new adiposity metrics such as measurement of total body fat percentage and lean mass with positioning technologies such as segmental bioimpedance. Given that the traditional body mass index (BMI) does not provide us with information on the relationship and distribution of fat in muscle tissue and, last but not least, the impact of pharmacological and nonpharmacological interventions for this way to make an approach based on personalized precision medicine. An emerging bioimpedance marker is the phase angle, which is inversely associated with mortality in dialysis patients in all modalities.

In Colombia, the Association of Nephrology and HTA has several working committees, one of which, the old Nephrodiabetes committee, became the "Kidney, Diabetes and Metabolism Committee" due to the importance of the impact of obesity. In CKD, this committee modified its objectives due to the need to work comprehensively on metabolic pathologies related to CKD.

The reflective conclusion is that the nephrologist should be the proactive leader in managing conditions that alter the human metabolism associated with CKD, and within this is obesity; practicing personalized precision medicine is the protagonist of a new development and not conflict in the underdevelopment that impoverishes and makes our patients.

**Keywords:**

DeCS: obesity, overweight, chronic renal failure, glomerular filtration rate.

**Abbreviations**

CKD: chronic kidney disease.

**References**


**Editor's Note**

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