Harmonizing Acute and Chronic Kidney Disease Definition and Classification: Scope of Work and Rationale for a KDIGO Consensus Conference

Previous KDIGO guideline Work Groups and conferences have recognized a spectrum of kidney diseases, some of which are defined by etiology, and some by timing and duration. The definitions for both AKI and CKD are based on alterations in kidney function and/or structure. The issue is that in clinical practice there may be alterations of kidney function and structure that do not meet the criteria for the definition of either AKI or CKD, yet the etiology of these alterations may warrant medical attention to restore kidney function and reverse damage to kidney structure to avoid adverse outcomes.

The rationale for the concept of AKD is thus that some patients with kidney diseases and disorders do not fulfill the criteria for either AKI or CKD, yet require medical attention. Without a definition for AKD, there is a gap between AKI and CKD, which is conceptually illogical, leaving patients in a grey area without a valid label and without management recommendations. Until recently, the magnitude of the problem and its consequences were not known. Emerging evidence has suggested that AKD is common, nearly three times more prevalent than AKI and like AKI, it is associated with increased risks of death and development or progression of CKD.[1] AKD in combination with CKD conferred the highest risks of death, progression of CKD, and kidney failure. There is also a growing literature attempting to describe community-acquired AKI,[2-4] some portion of which may actually be AKD without AKI. Kidney diseases (abnormalities of structure or function) can be recognized 'acutely' in the absence of an incident (like AKI), and can be of variable durations. If one can define AKD as that impairment which is identified at some point in time, with some previous evidence of normal kidney function (presumed or documented), then patients and clinicians can recognize this entity and then develop and test strategies to better manage those patients. Both AKI and AKD may be hospital or community acquired. It is likely that community acquired predominates in both AKI and AKD, and it is likely that community-acquired AKD in particular often goes undetected. AKI, AKD and CKD do not of themselves point to the underlying etiology of kidney disease, and it is probable that many of the same conditions cause AKI, AKD and CKD.

There has been recent discussion of the continuum of AKI, AKD and CKD. The ADQI 16 conference[5] suggested revisions to the definition of AKD and AKI first promulgated in 2012.[6] This group proposes that "AKI and acute kidney disease (AKD) are a continuum, that persistent AKI frequently becomes AKD, and that the latter should be defined as a condition wherein criteria for AKI stage 1 or greater persists ≥ 7 days after an exposure."

At the recent KDIGO AKI Controversies Conference in Rome (April 2019) the participants recommended a review of the definition of AKD, as well as development of recommendations for staging and clinical practice, with the specific suggestion that these recommendations be harmonized with current KDIGO definitions, classification and management recommendations for AKI and CKD (Table 1).

Table 1. Definitions of AKI, CKD, and AKD

	Functional Criteria	**Structural Criteria**
AKI	Increase in SCr by ≥ 50% within 7 days, *OR* Increase in SCr by ≥ 0.3 mg/dl (≥ 26.5 µmol/l) within 48 hours, *OR* Oliguria	No criteria
CKD	GFR < 60 ml/min per 1.73 m^2 for > 3 months	Kidney damage > 3 months
AKD	AKI, *OR* GFR < 60 ml/min per 1.73 m^2 for < 3 months, *OR* Decrease in GFR by ≥ 35% or increase in SCr by > 50% for < 3 months	Kidney damage < 3 months
NKD	GFR ≥ 60 ml/min per 1.73 m^2 Stable SCr without AKI/AKD/CKD	No damage

AKD, acute kidney diseases and disorders; AKI, acute kidney injury; CKD, chronic kidney disease; GFR, glomerular filtration rate; NKD, no kidney disease; SCr, serum creatinine.

Objectives

The purpose of this meeting would be firstly to revisit and refine the AKD definition and classification suggested in the 2012 AKI guideline[6] and describe the relationships between AKD, AKI and CKD. Secondly, our goal is to develop evidence-based management recommendations for AKD informed by epidemiological data and to identify the key areas of research required in this field with the aim to benefit clinical practice, research and public health. At this time, there has been limited research in the 'AKD space' and without consensus on the definition and classification of AKD, further research will be limited by inconsistent definitions, which will ultimately hinder the goals of improving clinical practice and public health.

Because evidence is limited at this time, the goals of the conference will be accomplished by a relatively small group of investigators, including those who have published on this topic and representatives from the past AKI and CKD guideline Work Groups.

Original data analyses using additional cohorts will be presented to examine AKD epidemiology as reported by James *et al*.[1] together with a review of the literature to address the key conference questions:

How should AKD be defined and classified?

What recommendations can be made for evaluation and management of AKD, especially in relation to:

- improvement in diagnostic accuracy
- the potential role for kidney biopsy
- general management (e.g., drug dosing/selection, initiation of CKD management)
- future research which may help to identify specific therapeutic outcomes

References

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