Acute kidney injury and COVID-19

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Editor,

I have read the paper by Kanbay et al. reporting incidence, correlations, and potential consequences of acute kidney injury (AKI) in Coronavirus-19 disease (COVID-19) patients in two hospitals in Istanbul, Turkey [1], with great interest.

The authors did a great effort to study the incidence and outcomes of AKI in COVID-19 hospitalized patients. Unfortunately, in my opinion, there is a major methodology issue. The authors stated that they defined AKI according to KDIGO 2012 criteria [2]. This implies a maximal 48-h observation period for the diagnosis. The authors acknowledge in Discussion section that “Patients might have had elevated baseline creatinine prior to hospitalization”. This means that there were missing values of serum creatinine before hospitalization, but they do not explain how did they diagnosed AKI in such patients. Especially in patients with ICU admission. We see from table 4 that median of days from hospitalization to ICU was 1 (interquartile range, IQR was 5) overall, and 0 days (IQR was 4) in non-AKI patients. That means that not all patients were followed up for at least 48 h before ICU admission, which is required for KDIGO 2012-based diagnosis of AKI, and therefore, diagnosis of AKI could have been underestimated. As the impact of AKI on combined mortality and ICU admission as primary outcome was studied, and diagnosis of AKI in at least some of the patients with ICU admission was not accurate, then one might argue that complete multivariable analysis was flawed.

There are several proposed ways to deal with the missing baseline creatinine in diagnosis of AKI. The KDIGO 2012 guidelines propose that patients should be assumed to have a baseline eGFR of 75 ml/min/1.73 m² in cases where there is no history of CKD and baseline kidney function is unknown

[2]. Siew et al. propose to take the mean outpatient serum creatinine value 7–365 days before hospitalization [3]. Both methods were used for dealing with missing baseline creatinine in the biggest studies that focused on incidence of AKI in COVID-19, by Chan et al. [4], Fisher et al. [5], and Hirsch et al. [6].

The authors also state that “the incidence, risk factors and potential outcomes of AKI in hospitalized patients are not well studied” and that “there has been a limited number of studies investigating the incidence and severity of AKI”. Well, there are numerous studies focusing on AKI and COVID-19. Several systematic reviews and meta-analyses were made. The biggest one being one from Silver et al. which included 54 studies with more than 30,000 patients with pooled prevalence of AKI of 28% [7]. The reported AKI incidences range from 0.5% (in study by Guan et al., but they did not report how AKI was defined, [8]) to 81% (in study by Joseph et al. [9]). Kanbay et al. write in their article that the biggest found incidence of AKI was 46% [1]. In table 3, superscripts above *p* values do not match footnotes.

Best regards,

Ivica Horvatić.

Declarations

Conflict of interest I have no relevant financial or non-financial interests to disclose.

Ethical approval This letter is in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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