Obesity-associated mortality risk: chronic kidney disease in focus

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Dear Editors,

Dhalwani N.N. et al [1] reported relevant data concerning mortality risk in obese patients with or without diabetes: HR 0.65, 95%CI 0.62.0.73 and HR 0.95 95%CI 0.91-0.99) respectively and these values highlighted the protective role of obesity.

According to this point, the already known "Obesity Paradox" has been assessed in obese chronic kidney disease (CKD) patients [2, 3]. Indeed, Fleischmann et al. [2] showed higher survival rates for CKD patients on hemodialysis (HD) with Body Mass Index (BMI) $\geq$ 27.5 than for patients with a BMI from 20.0 to 27.5.

In addition, the Dialysis Outcome and Practice Pattern Study (DOPPS) [3] reported a lower relative risk of mortality for overweight and obese HD patients: RR 0.84 p 0.00 and RR 0.73 p 0.00 respectively than patients with a normal BMI of 23-24.9 kg/m^2.

Unfortunately, Dhalwani et al did not report the prevalence of CKD in the baseline data of their study population, probably because this value was missing in the UK Biobank resource, but it would have been of note if the protective role of obesity in both diabetic and non-diabetic individuals was maintained regardless the CKD status.

Chooi YC et al. [4] reported in their review alarming data concerning the prevalence of overweight and obesity in nearly a third of the world population, with low and middle socio-demographic-index countries experiencing the highest increase in the last decades compared to developed ones where obesity rate reached a plateau [5].

We aim to point out that a similar trend has also been observed for chronic kidney disease (CKD), concerning both disease rate and geography, thus remarking the link between obesity and CKD [6].

Furthermore, the observation that CKD risk extends to obese who are metabolically healthy, indicates that obesity may contributes to CKD independently of metabolic complications [7].

Unfortunately, nowadays we are missing of reliable markers for the early identification and prompt management of CKD in obese subjects. Considering the underlying mechanisms by which obesity may promote CKD, albuminuria seems to be the more evident clinical manifestation of kidney derangement. Obesity-related mechanism involved in the onset and progression of CKD include both metabolic (hyperinsulinaemia, hyperglycemia and dyslipidemia) and hemodynamic factors (raised renal plasma flow, activated tissue renin-angiotensin-aldosterone system and hyperfiltration) [8-9].

Considering that the glomerular filtration rate (GFR) in obese individuals tends to increase due to the raised in renal plasma flow and sodium reabsorption in the proximal tubule, GFR assessment is not a reliable measure to assess renal function and to early diagnose mild to moderate CKD in obese patients [9]. In this setting, albuminuria might reveal in advance CKD in obesity [10].

Unfortunately, there is currently a gap in the obesity guidelines regarding the regular assessment of albuminuria [11-12], while both international [13] and national [14] diabetes mellitus guidelines have thoroughly indicated albuminuria as an independent marker of CKD progression and recommend its periodical quantification. Therefore, it could be the time to “enhance” the role of albuminuria as a biomarker for the obesity-related CKD onset and progression.

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