



Editorial

Gender differences in kidney function and health outcomes

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Gender hormones regulate structure and function of many tissue and organ systems [1,2]. Sexual dimorphism is defined as “the differences in appearance between males and females of the same species, such as in colour, shape, size, and structure, that are caused by the inheritance of one or the other sexual pattern in the genetic material” [3]. Some studies have reported that gender hormones affect renal morphology and physiology, and gender differences exist in the prevalence and prognosis of renal diseases. However, there are inconsistent results across study outcomes. There are also limited data available on this issue in humans [1,2,4,5].

It is emphasized that women have a slower rate of decline in renal function than men. This condition can be due to gender differences in kidney size and weight, biological, metabolic and hemodynamic processes [1,4]. In a study of 13,925 Chinese adults, Xu et al. [6] reported that the rates of decline in estimated glomerular filtration rate in men in both the at-risk group and the chronic kidney disease (CKD) group were faster compared to women, after referencing to the healthy group. Fanelli et al. [7] investigated gender differences in the progression of experimental CKD induced by chronic nitric oxide inhibition in rats. Their findings have indicated that female rats developed less severe CKD compared to males. According to Fanelli et al. [7], “female renoprotection could be promoted by both the estrogen anti-inflammatory activity and/or by the lack of testosterone, related to renin-angiotensin-aldosterone system hyperactivation and fibrogenesis” [p. 1]. Other studies have also reported that CKD was slightly more common among women than men [8,9]. In a prospective, community-based, cohort study of 5488 participants from the Netherlands, Halbesma et al. [10] investigated gender differences as predictors of the decline of renal function. They found that systolic blood pressure and plasma glucose level negatively associated with renal function decline for both genders. Interestingly, this follow-up study demonstrated that waist circumference was positively associated with renal function in men only [10]. In another community-based, cohort study of 1876 Japanese adults, a higher body mass index was also found to be an independent risk factor for the development of CKD in women

only [11]. On the other hand, compared with men, women tend to initiate hemodialysis with an arteriovenous fistula less frequently, and have greater risk of arteriovenous fistula failure [8]. Carrero et al. [5] also reported that women are less likely to receive kidney transplants than men. Further research is therefore needed to better understand the effect of gender on kidney function and health outcomes.

Conflict of interest

The author declares that there are no conflicts of interest.

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