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Commentary

Kidney Failure Trends in People with Diabetes: The Looming Epidemic

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Chronic kidney disease (CKD), an important complication of diabetes, is associated with serious adverse outcomes including onset of kidney failure, accelerated cardiovascular disease, poor quality of life and premature death.[1] With the rising prevalence of diabetes coupled with increased life expectancy, number of people with CKD due to diabetes is expected to rise worldwide, in particular in Asia.[2] Up to 40% of patients with type 2 diabetes develop kidney failure that requires renal replacement therapy (KRT) through hemodialysis (HD), peritoneal dialysis (PD) or transplantation for survival. Understanding the temporal trends in renal failure outcomes in diabetes is important to develop primary and secondary prevention strategies and to plan for resource allocation.

In *The Lancet Regional Health – Western Pacific*, Hongjiang Wu and Colleagues describe time trends in kidney failure outcomes including KRT and mortality in Hong Kong based on electronic medical records data from 712,222 persons with diabetes over a period of 13 years.[3] Despite the lack of data on key risk factors including socioeconomic status, lifestyle, type and duration of diabetes which may provide clues to the variation in kidney failure outcomes, the study highlights some age-related trends. Incidence of kidney failure showed a significant decline by 47% initially from 2002–2007, but, levelled off from 2007–2015 contributed by stagnating rates in adults aged 45–74 years. Overall incidence of KRT remained constant during the surveillance period, but the trends were consistently higher in younger vs. older adults. 5-year mortality rate after kidney failure showed a decline whereas 5-year mortality after KRT remained static with a marginal increase in younger adults aged 20–44 years. Cardiovascular disease was the most common cause of death in those who received KRT and ac-

counted for more than 20% of excess life-years lost in people with kidney failure, especially in younger adults.

It is well-recognised that cardiovascular risk is increased in diabetes and CKD.[5,6] Thus, the authors rightly highlighted the importance of CKD retardation and cardiovascular risk reduction in diabetes. Over the past few years, emerging evidence from randomized controlled trials have demonstrated that sodium glucose cotransporter 2 (SGLT2) inhibitors, when added to renin-angiotensin system inhibitors, reduced the risks of kidney failure and major cardiovascular events in patients with diabetic kidney disease.[7,8] Other therapies that may potentially improve clinical outcomes include non-steroidal mineralocorticoid antagonists such as finerenone,[9] and endothelin A receptor antagonists such as atrasentan.[10] However, it remains to be seen if the clinical efficacy of these drugs in the trial setting can be quickly translated to significant reductions in kidney failure and cardiovascular disease in the real-world. Enhancing the utilization of these newer and costly drugs may be a challenge, especially when considered in the context that use of older and well-established CKD retardation therapy such as renin-angiotensin system inhibitors remained low among people with diabetes in Hong Kong and other parts of Asia.[11] Since SGLT2 inhibitors have become available in the Hong Kong public sector since 2015, we can anticipate future research on trends in their use and the impact on kidney failure in the people living with diabetes.

What are the implications of the study findings to clinicians and healthcare system in Hong Kong and elsewhere? First, the static or increasing trends of kidney failure, KRT and long-term mortality in the younger age groups suggest increased incidence of early onset type 2 diabetes, delayed diagnosis, poor control of metabolic risk factors or suboptimal management. Second, although kidney failure rate in people with diabetes has flattened, on the basis of the rising prevalence of diabetes and aging populations worldwide, and the time lag of nearly two decades from onset of diabetes to kidney failure, kidney failure rates may be anticipated to increase

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substantially over the next few decades. These findings underscore the importance of focussing on preventive strategies such as improving awareness of kidney disease, risk factor control through lifestyle modification, optimising management of diabetes including cardiovascular risk reduction, improving compliance to treatment goals, early detection of CKD, regular monitoring and timely referral to nephrologists to prevent or delay progression to kidney failure. Hong Kong adopts a PD-first policy which has been proven to be a cost-effective approach with good survival outcomes.[4] However, in light of the growing demand for KRT, besides the PD-first policy, initiatives at policy/system level such as enhancing HD support as back-up, promoting organ donation and support for living kidney donors could pave the way to deal with the looming epidemic of kidney failure in diabetic patients.[4]

Declaration of Competing Interest

We declare no competing interests.

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