Living and Deceased Donation in Australia

By Kate Wyburn

Australia, like many countries around the world, has experienced a decline in living donor transplantation compared to deceased donors. The 2020 Australia and New Zealand Dialysis and Transplant Registry Annual Report (1) (reflecting complete data to 2019) reports that a total of 1104 kidney transplants were performed in 2019, an overall rate of 11.6 transplants per 100 dialysis-years (of people on dialysis aged 15–64 years). Living donor kidneys accounted for 22% of all kidney transplants performed in Australia in 2019. Of the 12,815 (prevalent) people with functioning kidney transplants, 30% (3797) originated from living kidney donors, and living kidney donors were more likely to be female (57.2%) (2010–2019).

The overall proportion of living donor procedures compared to deceased donor transplants fell from 29% in 2014 to 21% in 2018 (2). However, this was predominantly due to the steady overall increase in deceased organ donors, as the actual number of living donor kidney transplants remained relatively steady over that time (range 238–271), with a peak of 354 living donor transplants performed in 2008. The Organ and Tissue Authority, an independent agency within the Australian Government health portfolio, was formed in 2009; since then, deceased donors have more than doubled. In 2008, there were 259 deceased organ donors, and in 2019, there were 548. Donation after circulatory death (DCD) has increased over that time and currently accounts for approximately one-third of deceased donors in Australia.

While the overall proportion of living versus deceased kidney donors is now 22%, the proportion of living donors for recipients aged less than 25 years is generally greater than 40%. Additionally, 46% of all first kidney transplants in 2019 from living donors were performed preemptively (1). Preemptive transplantation is not available to people waitlisted for deceased donor kidneys in Australia.

The Australian and New Zealand Kidney Paired Kidney Exchange (ANZKX) program has been responsible for a significant proportion of the living donor kidney transplants (Figure 1). The program has evolved with strong clinical oversight to maximize its impact on, for example, continuous matching, inclusion of ABO incompatible matching, hepatitis B core antibody positive donors, and human leukocyte antigen (HLA) compatible pairs. Started in Australia in 2010 and extended to include New Zealand in 2019, ANZKX has facilitated over 400 kidney transplants since inception and now results in approximately 50 kidney transplants each year (3). ■

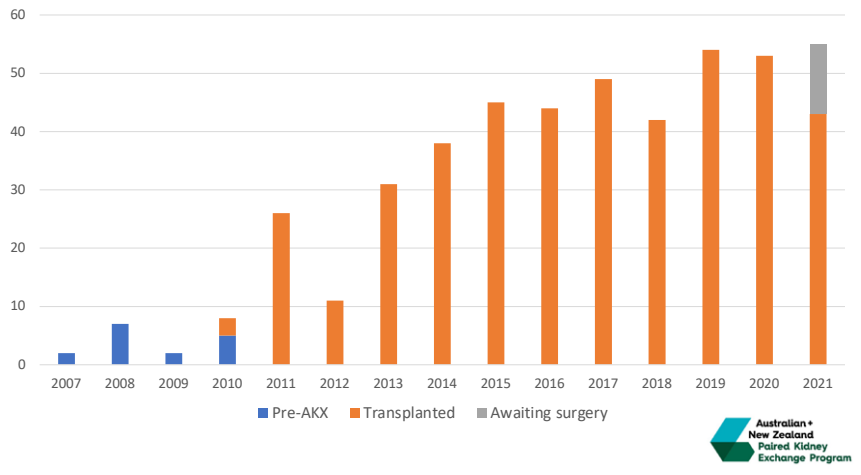
Kate Wyburn, BSc (Hons), MBBS, PhD, is with the Renal Department, Royal Prince Alfred Hospital, and is clinical professor at The University of Sydney, Australia.

The author reports no conflicts of interest.

References

1. Australia and New Zealand Dialysis and Transplant Registry. ANZDATA 43rd Annual Report 2020 (Data to 2019). Chapter 8: Kidney Donation. 2020. https://www.anzdata.org.au/wp-content/uploads/2020/09/c08_donation_2019_ar_2020_v1.0_20201222.pdf
2. Australia and New Zealand Organ Donation Registry. ANZOD Annual Report 2021. Section 5: Deceased Donor Kidney Donation. 2021. https://www.anzdata.org.au/wp-content/uploads/2021/08/s05_kidney_2021_v0.5_20210802.pdf
3. Australian and New Zealand Kidney Paired Kidney Exchange (ANZKX) Program. 2021. https://www.donatelife.gov.au/ANZKX

Figure 1. AKX / ANZKX transplant numbers



Findings

Increased Dose Versus Added Drug for BP Control: Randomized Trial

In older adults requiring intensification of antihypertensive therapy, adding a new medication leads to a greater reduction in blood pressure (BP), but maximizing dosage provides a more sustainable effect, reports a study in *Annals of Internal Medicine*.

The observational study included 178,562 patients requiring intensified antihypertensive treatment in the Veterans Health Administration (VA) system between 2011 and 2013. All patients were aged 65 years or older, had systolic BP (SBP) of 130 mm Hg or higher, and were taking one or more antihypertensive medications at less than maximum dose. Mean age was 75.8 years, and 98.1% of patients were men. The intensification strategy chosen was maximizing dosage in 74.5% of patients and adding a new medication in 25.5%. At 3 months, sustained intensification was achieved in 65.0% of patients receiving a maximized dose compared to 49.8% of those receiving a new medication. The average treatment effect was 15.2% at 3 months and 15.1% at 12 months.

In contrast, patients receiving a new medication had a slightly greater reduction in BP. The 3-month change in SBP was –4.9 mm Hg with adding a new medication versus –3.8 mm Hg with maximizing dose. Average treatment effect was –0.8 mm Hg at 3 months and –1.1 mm Hg at 12 months. For both outcomes, there was no interaction between intensification strategy and cardiovascular conditions.

Designed to emulate a clinical trial, the analysis helps address the lack of evidence on best strategy for older adults when intensified antihypertensive therapy is needed. In this VA population, adding a new medication provides a slightly greater reduction in SBP but a less-sustained effect.

By comparison, dose maximization is a more commonly followed strategy that provides greater sustainability. The researchers conclude, "Trials of different strategies of dose intensification are certainly feasible and would ultimately provide the most definitive support for our findings" [Aubert CE, et al. Adding a new medication versus maximizing dose to intensify hypertension treatment in older adults: A prospective observational study. *Ann Intern Med*, published online ahead of print October 5, 2021. doi: 10.7326/M21-1456; https://www.acpjournals.org/doi/10.7326/M21-1456]. ■

PCI Shows Benefits for Dialysis Patients with STEMI

For dialysis patients with ST-elevation myocardial infarction (STEMI), the benefits of percutaneous coronary intervention (PCI) are similar to those in non-dialysis patients, reports a study in the *American Journal of Kidney Diseases*.

Using the National Inpatient Sample, the researchers identified 413,500 adult hospitalizations for STEMI between 2016 and 2018. Of these, 4220 hospitalizations were for patients receiving dialysis—a rate of 1.07%. Dialysis patients with STEMI were older (65.2 versus 63.4 years), more likely to be women (42.4% versus 30.6%), and less likely to be White (41.1% versus 71.7%). Dialysis patients also had higher rates of comorbid cardiovascular and non-cardiovascular conditions.

Outcomes were compared for propensity score-matched cohorts of 2425 dialysis patients and 326,725 non-dialysis patients undergoing PCI, as well as 2420 dialysis patients and 325,955 non-dialysis patients who did not undergo PCI. The average treatment effect of PCI was estimated for in-hospital mortality and other outcomes.

Among STEMI patients, those on dialysis were less likely to undergo angiography (73.1% versus 85.4%) and less likely to undergo PCI (57.5% versus 79.8%). PCI was associated with lower mortality among dialysis patients (15.7% versus 27.1%), as well as non-dialysis patients (5.0% versus 17.4%). The average treatment effect was about the same between groups: –8.6% and –8.2%, respectively. The average marginal effect, accounting for clustering within hospitals, was –9.4% versus –7.9%. Other treatment effects of PCI were also similar for dialysis and non-dialysis patients, including major complications and discharge disposition. In both groups, PCI was associated with longer hospital stays and higher costs.

The study confirms that dialysis patients with STEMI are much less likely to undergo PCI compared to non-dialysis patients. However, despite their increased clinical risks, the in-hospital mortality benefit of PCI in dialysis patients appears similar to that for non-dialysis patients. The researchers conclude, "Further studies are needed to optimize STEMI care in the growing dialysis population" [Kawsara A, et al. Treatment effect of percutaneous coronary intervention in dialysis patients with ST-elevation myocardial infarction. *Am J Kidney Dis*, published online ahead of print October 15, 2021. doi: 10.1053/j.ajkd.2021.08.023; https://www.ajkd.org/article/S0272-6386(21)00922-7/fulltext]. ■