

World Kidney Day 2012: Renal Transplantation

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The slogan for this year's World Kidney Day is Donate – Kidneys for Life – Receive, which focuses on the positive outcomes of kidney transplantation and the life-saving aspect of organ donation. Kidney transplantation is arguably the best treatment for end-stage renal disease (ESRD), and is associated with improved quality of life, reduced mortality and morbidity when compared to peritoneal or haemodialysis.¹ Singapore has an active deceased donor and living donor kidney transplantation program. However, both waitlist and wait-time are long due to scarcity of suitable organs available for transplantation. The median wait-time for deceased donor kidney transplantation is 9 years, compared to an average of 3 to 5 years in the United States, Australia, or the United Kingdom. The United States Renal Data System (USRDS) 2010 Annual Data Report showed that Singapore's prevalent transplant rate was higher than Australia (332/pmp), Denmark (300/pmp), and New Zealand (301/pmp) but was lower than Hong Kong (442/pmp), Norway (572/pmp), and the USA (545/pmp).^{2,3} Public education and awareness promotions may help improve transplantation rates and provide the most appropriate therapy for suitable ESRD patients.

According to the Singapore Renal Registry, the age-standardised rate of incident ESRD starting dialysis is 256 persons per million population per year in 2008, with diabetes mellitus as the most common cause of ESRD (62%).³ The prevalence of ESRD patients on dialysis in 2008 was 4169 compared to 1255 patients with a functioning kidney transplant. Although, a kidney transplantation program is expensive (surgery, long-term immunosuppression medications, and follow-up care), in appropriate recipients, transplantation is cost-effective for the treatment of ESRD when compared to other means of renal replacement therapy.¹ Furthermore, in international comparisons, Singapore probably can do more to achieve higher rates of transplantation.^{2,3}

While kidney transplantation is the preferred treatment for ESRD, peritoneal dialysis and haemodialysis are also important options because of the shortage of organs and the unsuitability of some ESRD patients to undergo surgery. Prior to the invention of dialysis, ESRD was a terminal

illness.^{4,5} In the United States, the technical improvements of dialysis coupled with public health policies and funding mechanisms resulted in the conversion of a terminal illness into a chronic disease.⁶ In fact, in inflation-adjusted terms, haemodialysis is one-third of the cost in 1974. The many technological improvements of haemodialysis and peritoneal dialysis resulted in the creation of a “dialysis industry”. And ESRD remains the only organ failure to have effective outpatient or ambulatory therapies, and in the process, the “dialysis industry” saved many patients, and allowed them to have fruitful and fulfilling lives. Despite the reduction of relative costs, the total cost of ESRD treatment to society has increased due to the increased numbers of ESRD patients and the extension of dialysis to patients not originally considered for therapy (diabetic and elderly). Yet, dialysis in some patients may not be entirely benign.^{7,8} Therefore, research should now be directed at developing evidence-based approaches to the initiation, maintenance, and cessation of dialysis therapies in elderly patients, diabetics, amongst others.

While we have been discussing the treatment of ESRD patients, it should be argued that the best treatment is to avoid progression to ESRD in the first place. This requires a greater emphasis on the identification and treatment of patients with chronic kidney disease (CKD), or systemic diseases that increase the risks of initiating or worsening progression of CKD. Most of the clinical practice guidelines promulgated on the management of CKD and ESRD were from non-Asian populations.^{9,10} However, the identification and classification of CKD patients using glomerular filtration rates using serum creatinine-based estimating equations have been controversial, with up to a 40% difference in the estimates of GFR between Chinese and Japanese investigators.¹¹ Because of perceived inaccuracies with GFR estimations, identifying patients with CKD and establishing the prevalence in a Singapore population during health screening may be erroneous.¹² But it has been established recently that following calibration to standardised serum creatinine in our clinical laboratories, GFR estimated with serum creatinine is fairly accurate, and adjustments for Asian ethnicities are probably not required for our multi-

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ethnic Asian population in Singapore.^{13,14} Health screening for CKD in the general population is not cost-effective, but health screening targeted at patients with diabetes is, particularly since diabetes is the predominant cause of ESRD in Singapore.¹⁵ Recognising that Asian countries and populations may have unique patient and population characteristics that require additional clinical practice guidance, the Japanese Society of Nephrology sponsored the establishment of the Asian Forum for Chronic Kidney Disease Initiative (AFCKDI) to establish workgroups to develop clinical practice guidelines, and provide a platform for Asian clinical researchers to collaborate on research important to Asian nephrologists.¹⁶ For example, the possibly higher incidence and severity of IgA nephropathy in Asian patients suggests that health screening for haematuria using urine dipsticks may be an important addition to health screening practice in Asia.¹⁷ But the cost-effectiveness and the target population for screening is unclear and will require more research. Cultural risks of CKD are also addressed, such as screening in users of herbal medications. The forum thus, provides a useful venue for discussions on best clinical practices in the absence of definitive studies.

The identification and management of patients with CKD and ESRD is a continuous spectrum. It is therefore important to recognise that health policy, inpatient and outpatient reimbursements, and subsidy policies are intimately intertwined. A failure to consider all aspects of policies and funding mechanisms may generate perverse incentives or barriers to appropriate care, leading to poor health outcomes. For example, transplantation programs should be adequately funded to ensure that costs of immunosuppressive medications are not a reason for inadvertent graft loss. Since diabetes is the main cause of ESRD in Singapore, policies that aim at preventing diabetes or retarding the complications of diabetes will reduce the incidence and prevalence of ESRD. Therefore, we should re-double our efforts to improve the public's health literacy in diabetes and reduce the barriers to primary care. The transition of CKD care to ESRD care also needs to be improved. Late or urgent initiation of dialysis or transplantation results in higher resource utilisation and poorer care, often using more expensive options fraught with avoidable complications.¹⁸ Thus, comprehensive and robust advocacy for CKD and ESRD patients both at the level of the healthcare system, and also at the level of the patient is required to achieve the best possible outcomes.

Besides allowing us to reflect on the achievements of healthcare providers all over the world in managing CKD and ESRD, this World Kidney Day also let us identify the work that still needs to be done to improve the health outcomes of patients afflicted with ESRD and to prevent potential patients of CKD.

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