Paediatric Renal Transplantation in Asia – Results and Challenges

by CCM Lei, Murali S, Yap YC
Institute of Urology & Nephrology
Hospital Kuala Lumpur

Introduction:

A kidney transplant is usually the best form of renal replacement therapy, especially in children. It is therefore appropriate that we have a session on kidney transplantation at the UAA Congress 2019. The first kidney transplant in Malaysia was done on 15.12.1975 for a 30 years old man, the donor being his younger brother. The recipient died 31 years after the transplantation, with a functioning kidney. The first cadaveric kidney transplantation in Malaysia was done in 1979. The Malaysian cadaveric transplant programme was re-activated on 22.7.1992, with one of the kidneys going to an 11 year old paediatric recipient. The kidney transplant programme in Malaysia has remained stable with about 60 cases per year. The majority of the renal failure patients are treated by haemodialysis from a subsidized dialysis programme. Currently the deceased donor programme just exceeds that of the living donors.

Methods:

The numbers and pattern of the renal transplantation in Malaysia are available online at the Malaysian Dialysis and Transplant Registry. A literature search was made online to gather data on the paediatric renal transplantation programmes in the rest of Asia. Further data is collected through email contacts. Lamawnasa MD of Sri Lanka shared his paediatric kidney transplant experience during the College of Surgeons of Malaysia Annual Scientific Meeting 2018. His university had done 106 paediatric transplants during the period July 2004 to August 2017, all from living donors, average age 11.4 years, smallest child was 8 kg.

Results:

The paediatric kidney transplantation programme in Malaysia was rejuvenated in 2000. In 2000 – 2007, there were 59 paediatric kidney transplantations with 24 from live donors. The paediatric ages are from 6 to 17 years with a body weight of 17 to 48 kgs. Since 2007, the number of paediatric renal transplantations has remained rather low, a handful per year. A possible reason is the reluctance of surgeons to transplant patients smaller than 15kg. There is usually a mismatch of the vasculature in paediatric transplantations despite using the external or common iliac vessels for anastomosis. In the detailed analysis of the 59 recipients (year 2000 to 2007), there were 3 graft nephrectomies, 2 perinephric haematomas and 1 aorto-iliac aneurysm which required vascular repair. Longer term outcome is being reviewed. Recipients include patients who have voiding dysfunction, including 1 cystoplasty and a few on CIC, clean intermittent catheterisation. Cadaveric donors less than 2 years were extremely challenging and they were a total of 4 of them from 2000 to 2007: 2 sets were transplanted enbloc.

According to an email communication (www.conos.go.kr), the number of paediatric kidney transplantations in South Korea for the period from 2000 to 2018 showed an average of about 44 paediatric kidney transplantations per year, about 1/3 of them being from deceased donor. Singapore published their 19 year experience in paediatric renal transplantation at the Annuals of Academy of Medicine Singapore 2009 when they reported on 38 renal transplants with the median age of 13.9 years. According to update from my Singapore colleagues, as of June 2019, the National University Hospital had done 83 paediatric renal transplants, with 31 of them from deceased donors. Thailand published their paediatric kidney transplantation experience in Transplantation Proceedings in 2008 whereby they reported 46 paediatric kidney transplants at 5 paediatric centres for the period July 1996 to November 2006. The median age of the recipients was 11.1 years, with 67.4% cadaveric donors, and 2 preemptive transplantations. My friend G Gopalakrishnan of CMC in Vellore, India reported in Asian J Surg 2002 the experience with 63 cases with transplants done <15 years of age; all were living related donors, done 19894 to 1996 with the patient and graft survival at 3 years as 90% and 86% respectively.
Indonesia has a population of about 260 million, with an active kidney transplant programme, since 2011, with 491 transplants done at Cipto Jakarta and 134 transplants done outside Jakarta. (http://dx.doi.org/10.13181/mji.v26i3.1770). I understand that there are a handful of paediatric renal transplants since.

**Conclusion:**

Paediatric renal transplantation continues to be challenging. Children with kidney failure in Malaysia are looked after by more than a dozen paediatric nephrologists. Most of the children with kidney failure are being treated by peritoneal dialysis or haemodialysis. The lack of donors (living and deceased) is among the major limiting factors. The situation in the rest of Asia seems similar. Thailand had reported “access to treatment and medical expenses may be substantial barriers”.