

Abstract Submission No.: A-0561**The Brunei National Kidney Transplant Program - A 10 Year Analysis**

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Case Study : Brunei, with the smallest population in Asia, started its national program in 2013. The program stands on its four core principles equity, quality, sustainability, and morality. The program overcame many barriers: technical, religious, cultural, political, and legislative since its inception in 2013. The program was initially guided and mentored by foreign expertise, but since 2019 local surgeons have performed independently through a multi-disciplinary approach involving general, vascular, and urological surgeons. By the end of 2023, the point prevalence of treated End Stage Kidney Failure was 2233 per million population, corresponding to 1018 prevalent patients on Kidney Replacement Therapy. Brunei's local Transplant incidence rate for 2023 was 15 per million population amongst the highest in Southeast Asia (including kidney transplant operations sent abroad by the government). The progress of the program was hampered by the COVID-19 pandemic (2020-2022), when transplantation activities were limited. Over 10 years, the program has successfully conducted 20 living related donor kidney transplantation surgeries, with increasing momentum after the pandemic. 2 cases required re-exploration after transplantation because of bleeding complications. All patients received either basiliximab or anti-thymoglobulin induction, with maintenance therapy on mycophenolate mofetil, tacrolimus, everolimus and steroids. Infectious complications include mycobacterium tuberculosis (n=2), invasive cytomegalovirus disease (n=3) and BK nephropathy (n=6). At the end of 2023, 18 patients had well-functioning graft kidney, and 2 patients reverted to dialysis through recurrence of glomerular disease. We hope to consolidate and expand the national program in the next few years by incorporating innovative exchange schemes and commencing a deceased donor program. Ensuring viability and sustainability is an important goal for the country, given the small population and limited expertise within the country. Deterring commercialization, augmenting experiential learning environment, and improving public confidence remain to be important goals for the fledgling program.

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Table 1 Demographic and Admission Details of all Kidney Transplantation (Recipient) done in Brunei (n=20) over the past 10 years

No	Gender	Relationship	Age of Transplant	Age of ESRD	Year of Operation	Diagnosis	Blood group	Presence of DSA	HLA Mismatch	Panel Reactive Antibody (%)	Warm Ischaemia time (minutes)	Operation time (minutes)	Surgical Complications	Hospital stay (days)
1	Female	Daughter	21	19	2013	Henoch Schonlein Nephritis	O	No	1	<3	150	236	Bleeding intraoperatively from venous anastomosis. Received 4 units of Blood	12
2	Male	Son	29	28	2014	Unknown	AB	No	2	47	90	213	nil	14
3	Male	Husband	45	42	2015	Unknown	B	No	5	<3	90	297	nil	16
4	Female	Sister	28	25	2016	Unknown	B	DR52(MF16 68)	0	<3	75	280	nil	15
5	Female	Daughter	26	25	2017	Unknown	AB	No	2	<3	153	290	nil	13
6	Female	Wife	29	28	2018	Unknown	A	DQ6 (MF4514)	5	Class I 11, Class II <3	105	225	nil	15
7	Male	Brother	47	47	2018	Mesangiocapillary glomerulonephritis	A	No	0	Class I 4, Class II 10	120	226	Rectus sheath hematoma which settled with conservative management	16
8	Female	Sister	23	23	2019	Unknown	B	DRB3 (MF1768)	3	<3	141	315	nil	13
9	Male	Brother	36	32	2019	Unknown	O	No	0	Class I <3, Class II 38	73	254	surgical reexploration for infected wound hematoma	23
10	Male	Brother	21	20	2019	Focal Segmental Glomerulosclerosis	A	No	2	<3	132	341	nil	13
11	Male	Brother	36	32	2020	Chronic Glomerulonephritis	O	No	2	<3	105	250	nil	11
12	Male	Husband	38	37	2020	Diabetic Nephropathy	B	DRB3*01:01 MF1 606	5	Class I - 8, Class II <3	78	280	nil	12
13	Male	Son	24	22	2020	Chronic Glomerulonephritis	A	DRB3*01:01 MF1 607	3	<3	46	264	nil	13
14	Male	Son	20	19	2021	Tubular Necrosis	A	No	2	<3	95	289	nil	11
15	Male	Brother	31	30	2022	Focal Segmental Glomerulosclerosis	O	No	0	<3	80	195	nil	12
16	Male	Brother	22	20	2022	CKD secondary to Hypoxic-Ishaemic Encephalopathy	A	No	0	<3	77	240	nil	13
17	Male	Son	24	22	2023	Secondary FSGS due to hyperfiltration in single function kidney. Alport's Syndrome.	B	No	2	<3	92	465	Vascular flow issue to graft upon anastomosis. POD1 requires reexploration and evacuation of perinephric hematoma	20
18	Male	Brother	40	39	2023	Chronic Glomerulonephritis/ Hypertensive Glomerulosclerosis	A	No	6	Class I - 3, Class II - 4	99	365	nil	11
19	Female	Wife	32	31	2023	IgA Nephropathy	B	No	5	Class I - 3, Class II <3	104	297	nil	14
20	Male	Son	27	25	2023	Familial hypomagnesemia with hypercalciuria and nephrocalcinosis (FHHNC)	O	No	2	Class I - <3, Class II - 3	139	360	nil	10

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Table 2 Follow up of Recipient and Donor Parameters upon Discharge, 1 year, 3 years and 5 years.

Follow Up		Discharge		1 year		3 years		5 years	
		Mean (SD)	Median	Mean (SD)	Median	Mean (SD)	Median	Mean (SD)	Median
Creatinine (mmol/L)	Recipient	110.8(29)	104	117.5(31)	109	117.2(33)	113	122.7(24)	131
	Donor	103(36)	103.5	105(31)	102	103(30)	113	116(23)	130
Hemoglobin (g/dL)	Recipient	10.9(1.9)	10.8	14.6(2.1)	14.7	14(2.4)	14.6	13.8(2.4)	14.3
	Donor	12.6(1.4)	12.8	14.2(1.6)	14.8	14.4(1.4)	14.7	14.7(1.0)	14.5
Albumin (g/L)	Recipient	37(4.5)	36	45(3.2)	45	43.9(2.9)	44	44(1.2)	44
	Donor	-	-	43.2(2.9)	44	42.5(1.9)	44	42.9(2.1)	44
Phosphate (mmol/L)	Recipient	0.76(0.14)	0.75	0.95(0.19)	0.99	0.98(0.11)	1.02	0.98(0.11)	1.02
	Donor	1.07(0.23)	1.02	1.08(0.11)	1.11	1.05(0.14)	1.06	1.07(0.11)	1.01
Systolic BP (mmHg)	Recipient	134(13)	137	124(13)	124	134(12)	133	127(11)	125
	Donor	120(13)	119	119(14)	124	117(11)	120	126(14)	126
Diastolic BP (mmHg)	Recipient	86(8)	86	83(8)	82	87(7)	86	80(8)	79
	Donor	77(11)	76	79(5)	80	75(8)	75	78(8)	80
Total Cholesterol (mmol/L)	Recipient	-	-	5.16(1.2)	5.13	4.88(0.71)	5.13	5.12(0.66)	5.14
	Donor	-	-	4.98(1.0)	4.79	5.00(1.1)	4.93	5.27(1.11)	5.18