Renal Transplantation at Al-Raheed Military Hospital Baghdad (Report of 100 Cases)

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Introduction:

Al-Rasheed Military Hospital had pioneered renal transplantation in the Middle East and Arabian Peninsula, when the first kidney was transplanted from a mother to her son in June, 1973 by Dr. Al-Khayal and his team. Eight transplants were performed until 1975, when the programmed has ceased, to start again on June 1978 by our team, in a slow pace increasing progressively to 20 per year in 1989, fulfilling the demand of all military personnel suffering from E.S.R.D. who have suitable living related donors.
No cadaver transplant is performed as yet in Iraq, although there is no legal, ethical or religious reason forbidding it. What is needed is public motivation.

Patients and methods:

Between June 1978 and October 1989, 101 renal transplants from living related donors (97 siblings, 2 mothers, 1 son and 1 daughter) were performed on 100 patients, as one of them had two transplants. All patients were suffering from E.S.R.D. expect one who lost his single kidney after trauma and had to be transplanted from his brother. All patients were males except three, their age between 6-45 yrs. (mean 23 yrs.). HLA haploidentical is the minimum matching accepted. No DR matching of MLC is performed. Fifty two HLA identical transplants were done, while the other 49 were non identical (31 haploidentical, and 18 with one mismatch). No any specific blood transfusion policy is undertaken.

Technique:

The kidney is flushed with 500 ml Hartmann solution containing 10000 U of heparin, 5 ml of 2% procaine (or Xylocaine) and 1 m.Eq of $NaHCO_3$.

The internal iliac artery is chosen for end to end anastomosis, unless it is abnormal or short (9 transplants) or when there is more than one donor artery (2 transplants), an end to side anastomosis to the external iliac artery is performed. Two kidneys had a small separated lower pole artery which was anastomosed end to side to the main renal artery on the work bench.

The renal vein is routinely anastomosed end to side to the external iliac vein, additional smaller renal veins are ligated. Politano-Lead better ureteric reimplantation for all except ten who had anterior extra vesical reimplantation. All reimplatations were unstented. All kidneys functioned immediately after removal of the clamps.
Urethral catheter is used for 5 days.

Antibiotics are only given during induction of anesthesia (80 mg Gentamicin and 4 gm Ampiclox).

Immunosuppressive regimen:

Conventional Azathioprine Prednisolone is routinely given. The first dose is given in the ward just before the patient comes to the theatre, then reduced as follows:
Azathioprine: Day 0: 5 mg/kg 8.W for 3 days.
Day 3: 2-3 mg/kg 8.W (maintenance).
Prednisolone: Day 0: 250 mg methyl – prednisolone.
Tapered to 1 mg/kg in 2 weeks post-op.
Then to 0.25 mg/kg in 6 weeks post-op.
Then 10 mg dialy after 3 months.
After 3 yrs, 10 mg every other day.
CyS-A is given selectively to those patients who get Azathioprine side effects, so they are converted to CyS-A and prednisolone. After completing this series, we are now using triple therapy (CyS- A/Aza./Pred.).

Treatment of rejection:

Methyl prednisolone is used in Mini-Pulse schedule as follows:
Day 1: 500 mg.
Day 2: 250 mg
Day 3: 250 mg
Day 4: 125 mg (if no or slow response).
This can be repeated after few days. A maximum total of 6 gm can be given for repeated episodes of rejection.
Since 1987, we have been using CyS-A in treating rejections that are resistant to Methyl-prednisolone pulse therapy (2 patients), and for those who develop a third rejection (4 patients), in dose of 15 mg/kg for ten days only, and then returned back to conventional Aza-Pred. therapy.

Results (Fig 1):

Actuarial patent survival for the 11 yrs. period under study is 73%. Actuarial graft survival is 69%. Patient death or return to dialysis is counted as graft loss, as no graft had to be removed in this series.

Rejection (Table 1):

A total of 70 rejections in 39 patients, 19 of whom had multiple rejections treatments was successful in 30 (77%) of them. 5 had subnormal graft function (13%), and 4 patients went back to dialysis (10%), which makes 5.5% of the 73 surviving patients.

17 (44%) were of the HLA-identical patients, had 27 (39%) rejections, 7 of whom had multiple, and were all successfully treated to normal graft function. On the other hand, 22 (56%) of the patients were of the HLA- non identical group developed 43 (61%) rejection episodes, 12 of whom had multiple episodes. 13 (59%) were treated successfully, while 5 (23%) remained with subnormal graft function, and 4 (18%) had to return to dialysis.

Two resistant rejection episodes in two patients were treated with CyS-A pulse therapy, successfully. Four patients who had two rejection episodes previously, were similarly treated, one returned to normal graft function, while the other three had improved, but to subnormal function.

Surgical complication (Table 2):

1- Five ureteric leaks (5%) occurred in the immediate post-transplant period, all with stented nephrostomy using Cumming-Malecot catheter, the tube is left for three weeks. All cases were successfully treated in this way.

Nephrostogram is performed before removing the tube.

2- One patient had lymphocoele, which was treated with needle aspiration (1%). 3- Six patients (6%) had wound infection, treated with antibiotics.

No other surgical complication was encountered, and no graft had lost its function or removed as a result of a surgical complication.

Medical complications (Table 3)

The medical complications in 73 living patients are depicted in the table.

Mortality (Table 4)

Twenty seven patients died between three days and 3.5 yrs after transplantation, 6 of them (22%) were HLA- identical, while 21 (78%) had one or two mismatches. Causes of death are shown in table 4. The commonest cause of death is infection (21 patients), 17 of them were due to CMV, 5 of them died with normal graft function (19%).

Discussion:

The most important single factor determining graft survival in this series was the HLA compatibility between the donor and the recipient. Our result reconfirm pervious reports that HLA-identical grafts differ significantly from other grafts by a higher graft survival, superior graft function and lower rate of complications (1-2).

Our results suggest that meticulous technique can reduce the surgical complications to the minimum, in an operation which thought by many as potentially fated with much complications.

The relatively increased rate of fatal infections is perhaps related to circumstantial factor due to war time.

Conditions of the hospital (66 cases were performed during wartime), and/or due to the relatively high dose immunosuppressive regimen. We have been using low dose triple therapy (CyS-A/Aza./Pred.), after completion of this series.

The proximity of patient and graft survival (73 Vs 69) is due to the fact that there were only 4 grafts that lost their function in the survivors due to chronic rejection. The success of treatment of rejections with the mini pulse therapy of Methylprednisolone had confirmed pervious reports (1-3).

Although experimental work in vitro has shown that CyS-A acts mainly on the early stages of T-cell maturation, probably through an effect on the synthesis and release of the mediator molecules interleukin 1 and 2 [4], Wagner [5] suggested, therefore, that CyS-A should be used to prevent rather than to treat established graft rejections. However some studies have reported that CyS-A is effective in treating acute rejection in renal transplants [6-7-8]. We have tried this policy on six patients, three of them settled down to normal graft function, the other three showed partial reversal and the serum creatinine did not fall to normal value. It might be argued, that better result might be achieved if they were converted to CyS-A and prednisolone as maintenance therapy [9].

Conclusion:

1- The outcome of kidneys from HLA-identical live related donors is superior to that from less matching donors.
2- The occurrence of multiple rejection episodes had prognostic bearing on long term graft survival in the HLA non- identical group.
3- Methylprednisolone mini pulse therapy is as effective as the conventional pulse therapy, in treating acute rejection episodes.
4- Cyclosporine A is useful as an alternative therapy for the treatment of acute rejections in patients on conventional Aza. Pred. immunosuppression.

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TABLE - I-

REJEC TI ON S

N o.	N o.	Multiple	Ch. Rejection	
M i sm atc h es		Patients	Rejec tion s	r
e jec tion s	Succ ess Su bn orm. D i a l.			
To ta l 0 %)	39 70	19	30 (77%)	5 (l 3%)) 4 (1
				0
l -1				4(l 8%)

N o t : I -N o ch ronic rejec tion in th e H L A -ld en tic al g roup.

2-A l l ch ron ic re jec tion c ase s are of the H L A -Non id en t ic a l g roup ,and al l h as h ad m u l tip le rejec ti on ep i sod es.

3- 75% (9/12) of th ose w h o had m ul tip l e re i ec ti ons (of th e H L A -N on id en tica1 group) d eveloped ch.rejection.

TA B L E - 2 -

SURGICAL COMPLICATIONS	
U re te ric leak	5(5%)
Wound infection	6(6%)
L y m p h oc oe le	I(I%)

TA 9LE - 3

-

M EDI C AL C O MP LIC A TION S

(73 Liv ing patients)		29	40%
U. T.I.(Asym p tom a tic) - Ea rly(3m on ths)		9	I 2%
- La te- (3 y rs.)		33	44%
		(I9 Rejecti on s)	
Hypertension on ths)	- Ea r l y(6 m	11	15%
	- Late(3 yrs.)		
Jaundice	- All	11	15%
	- HbsAg 6 (8%)		
D i abe tes		3	4%
L euc op enia		7	I0%
He rpes zoster		3	4%
Po l yc y them ia		2	2.7%
Reac tivated Pul Th		I	I. 3%
K aposi sarc om a		1	I. 3%
Psychosis		I	1.3%

TABLE - 4

- CAUSES OF

DEATH

Infection	21	(CMV)
G. I.B leeding	2	
C.V .A.	1	
Cardiac arrest	1	
An aesthetic	1	
Drug non-compliance		
Total	27	

N.B. 5 died with normal graft function, out of total.

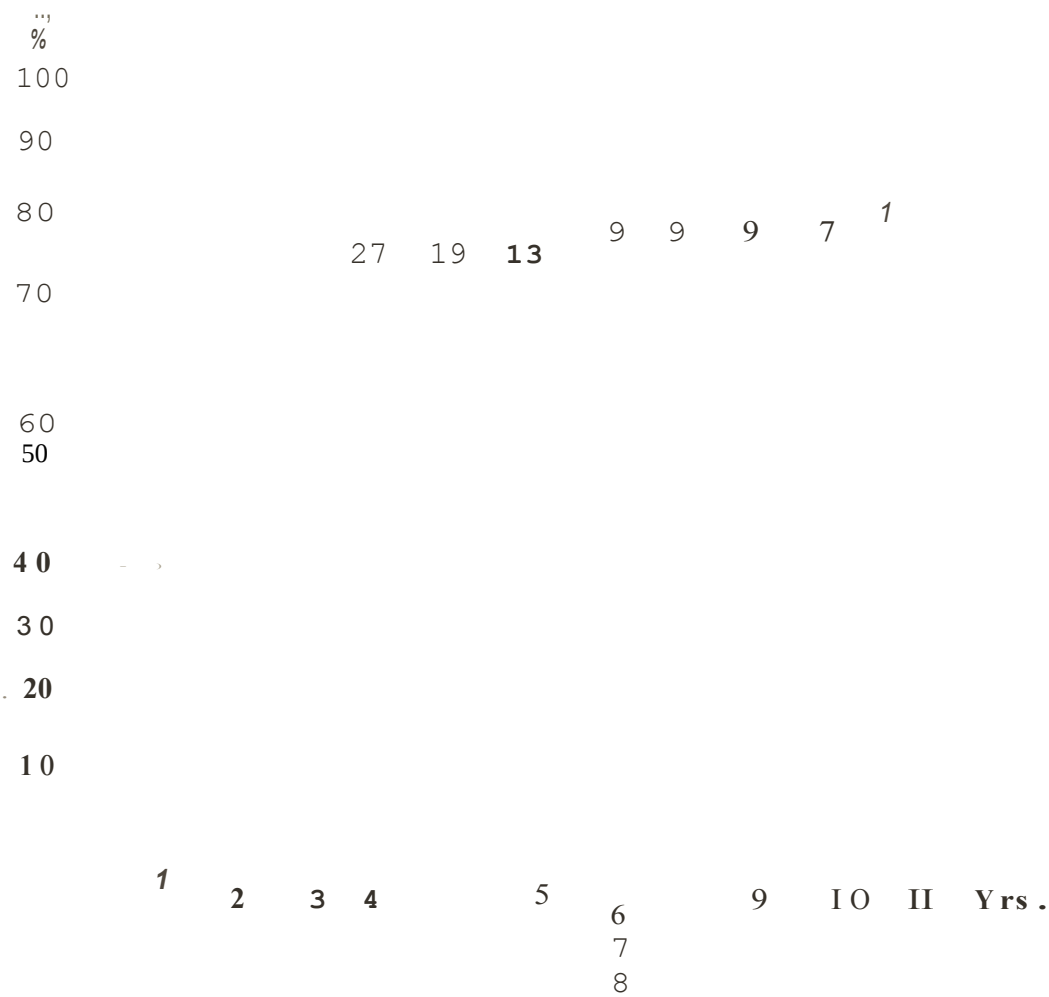

FIGURE - I -

PA T I EN T & G R A F T SU RV IV AL