NEW ONSET DIABETES IN A LIVING DONOR KIDNEY TRANSPLANT PROGRAMME: TREATMENT AND OUTCOME

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OBJECTIVES

- To study the incidence of new onset diabetes after transplant (NODAT) in recipients from living donor in a tacrolimus based triple immunosuppressive regimen.
- To study the outcome of these patients in terms of acute rejections (AR), infections, graft and patient survival.
- To compare outcome of patients with NODAT to patients with pre existing diabetes (DM).

METHODS

- Study was conducted between February 2010 to June 2014 in Medanta Hospital, Gurgaon.
- NODAT was defined as fasting blood glucose ≥ 126 mg/dl and/or 2 hour post prandial glucose ≥ 200 mg/dl twice requiring antidiabetic drugs, beyond 1 month after transplantation.
- Patients with minimum 6 months of follow up were included.
- Patients with impaired fasting glucose (IFG) or impaired glucose tolerance (IGT) were excluded.
- Patients were also excluded if sugars improved within a month and did not require medication for DM.
- Immunosuppression consisted of Tacrolimus (TAC), Mycophenolate (MMF) and steroids in 71/83 (85.5%) patients; steroid free (SF) protocol with TAC and MMF in 6 (7.2%); TAC, azathioprine and steroids in 4 (4.8%); and cyclosporine, MMF and steroids in 2 (2.4%).
- All patients received intravenous methylprednisolone (IVMP) 500 mg on day of transplant followed by oral prednisolone, tapered to 5 mg/day at 3 months in all except SF group, in which prednisolone was stopped by day 5.
- TAC levels were kept between 8-12 ng/ml at 0-3 months, 6-8 ng/ml between 3-6 months and 3-6 ng/ml thereafter.

RESULTS

Variable	NODAT (n=83)	Pre existing DM (n=230)	P value
Baseline chracteristics			
Age in years (Mean±SD)	40.5 ±11.5	52±9.18	<0.001
Sex (male)	69 (83%)	215 (93.4%)	0.009
Donors age in years (Mean±SD)	48±11.2	47.9±10.5	ns
Induction	51 (60.2%)	165 (71%)	ns
Duration of dialysis in months (Mean±SD)	4.4±1.5. 2	5.2±6.5	ns
Follow up in months (Mean±SD)	29.4±15.5	27.5±14.8	ns
Outcomes			
Acute rejection	22 (26.5%)	38 (16.5%)	0.13
infections	25 (30.1%)	42 (18.2%)	**0.045**
Graft survival	81 (97.5%)	223 (97%)	0.1
Patient survival	83 (100%)	212 (92.2%)	**0.014**

- 83/891 (9.3%) patients developed NODAT.
- Risk factors for NODAT were:
  - Family history of diabetes in 21
  - Pre transplant HCV positive in 4
  - Post -transplant acute pancreatitis in 3
  - Post -transplant HCV positivity in one
- AR was numerically higher in NODAT group 22 (26%) as compared to those with DM (16.5%), so higher steroid doses was another risk factor for NODAT.
- Most patients 76/83 (91%) developed diabetes within a month of transplant.
- Initially, oral anti-diabetic drugs (OAD) alone were given in 40 (48%) and insulin with or without OAD in 43 (52%) patients.
- At last follow up, there was marked resolution of NODAT, with 33 (39.7%) patients not requiring anti-diabetics, 32 (38.5%) patients controlled on OAD and only 18 (21.6%) required insulin.
- Three (3.6%) patients developed coronary artery disease (CAD), of which PTCA was done in two and CABG in one patient.

CONCLUSIONS

- Family history of diabetes, HCV positive state and higher doses of steroids were main risk factors for development of NODAT.
- Infections were higher in these patients.
- Many patients could discontinue drugs for NODAT.
- Short term graft survival was comparable and patient survival was better than those with pre-existing diabetes.

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