Introduction and Aims: To determine the risk factors for new-onset diabetes after transplantation (NODAT)

Methods: This is a retrospective observational cohort study. All adult patients transplanted over a 9 year period were included provided that they had no evidence of pre-transplant diabetes and had a functioning graft for ≥12 months. Data collected include age, sex, family history (FH) of diabetes, BMI and type of donor source. The pre-transplant fasting blood sugar (FBS) levels, at and during the first 24 hours post transplantation, at 6 months and 12 months post-transplant were measured.

Results: There were 279 patients in the study with a mean age of 36.3±13.2 years, mean BMI of 26.5±7.2 and mean pre-transplant FBS of 5.0±0.8 mmol/l, which rose to 9.6±4.8 mmol/l after 24 hours with the highest level during the first 24 hours being 14.1±8.3 mmol/l.

Fifty-seven patients (20.4%) developed NODAT. This group was significantly older (43.6±10.7 versus 34.2±13.1 years respectively; p=0.000), heavier (78.8±13.7 versus 66.9±19.2 kgs respectively; p=0.000), with higher BMI (30.6±5.0 versus 25.8±7.0 respectively; p=0.000) than the group that did not. They also had a higher FBS level after 24 hours of transplantation (10.9±4.1 versus 9.4±2.9 mmol/l respectively; p=0.03), at 6 months (7.9±3.7 versus 5.3±1.0 mmol/l respectively; p=0.000) and at 12 months (9.0±3.8 versus 5.3±1.0 mmol/l respectively; p=0.000) (table 2). No significant differences were observed between the two groups in height, FBS in the pre transplant workup or serum creatinine levels at 6 or 12 months.

The incidence of NODAT was not affected by gender (13% in males and 18.5% in females (p=0.2) or by kidney donor type (15.8% for LD and 15.0% for DD (p=0.9). However, it was significantly higher in those with a FH of DM than to those without (37.2% and 1.2% respectively (P=0.000 (RR 31.3; 95% CI 7.7-126).

In the group with NODAT, 18.0% had a FBS at 24 hours >6 (mmol/l) but only 4% with FBS at 24 hours 35 year but only 8.8 % were aged 26.1 but only 5.9 % had a BMI of < 26.1 (p<0.000) (RR 1.26 95% CI 1.136 to 1.406) and 37.7 % had a FH of DM but only 1.2 % had no FH of DM (p=0.000) (RR 31.3 95% CI 7.730 to 126.812)

The risk was not altered by gender (p=0.2 RR 1.07 (95% CI 0.96-1.18) or transplant donor type (P=1.0 RR 1.05 (95% CI 0.597-1.84)

Multivariate analysis confirmed FH of DM, age and FBS level at 24 hours as independent risk factors

Conclusions: A fifth of the patients developed NODAT with the risk factors being older age, higher BMI, higher FBS 24 hours after transplantation and family history of DM.