DIABETICS AND NON-DIABETICS HAVE SIMILAR GFR 5 YEARS FOLLOWING RENAL TRANSPLANTATION

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Background

Diabetes mellitus (DM) is an important cause of end-stage renal disease worldwide, around 25% of renal transplant recipients have DM as their primary disease for renal failure. Diabetic patients have more complications pre and post renal transplant with increased morbidity: wound healing, infection, and cardiovascular complications which affects their graft and patient survival.

Study aim

The aim of this study was to compare the glomerular filtration rate (GFR) of transplanted deceased donor kidneys in diabetic vs. non-diabetic patients.

Material and Methods

- We studied 848 patients from a single center receiving a deceased donor kidney transplant between January 1, 2000 and June 30, 2005.
- There were 299 diabetic and 549 non-diabetic patients. The Cockcroft-Gault formula was used to calculate GFR for each patient using the most recent recorded weight for each time point.
- Pearson’s Chi-Square test was used to compare proportions between groups and Student’s t-test was used to compare differences in means between groups.
- Kaplan-Meier survival analysis was conducted to compare patient and graft survival.
- Donor kidneys for diabetic patients were older and had a greater incidence of cardiovascular death, although cold ischemic times were similar between groups.
- More patients with diabetes received Tacrolimus for immunosuppression.
- Diabetic patients had worse delayed graft function, longer hospital stays and decreased overall patient survival (88% vs. 73%, p<0.001). However, death-censored graft survival and mean and median GFR values up to five years after transplantation were similar between diabetic and non-diabetic patients.

Results

- Diabetic and non-diabetic patients were similar in regards to blood type, race and virology status.
- Diabetic patients, however, were statistically older, had higher body mass index and higher total HLA mismatch.
- Donor kidneys for diabetic patients were older and had a greater incidence of cardiovascular death, although cold ischemic times were similar between groups.
- More patients with diabetes received Tacrolimus for immunosuppression.
- Diabetic patients had worse delayed graft function, longer hospital stays and decreased overall patient survival (88% vs. 73%, p<0.001). However, death-censored graft survival and mean and median GFR values up to five years after transplantation were similar between diabetic and non-diabetic patients.

<table>
<thead>
<tr>
<th></th>
<th>Non-Diabetic (n=549)</th>
<th>Diabetic (n=299)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at Tx</td>
<td>47.3 ± 13.8</td>
<td>57.8 ± 8.8</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>BMI</td>
<td>24.2 ± 4.4</td>
<td>26.0 ± 4.4</td>
<td>&lt;0.001</td>
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<tr>
<td>TMM</td>
<td>3.4 ± 1.7</td>
<td>3.7 ± 1.6</td>
<td>0.03</td>
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<tr>
<td>Dialysis Time</td>
<td>56.8 ± 43.9</td>
<td>42.1 ± 29.6</td>
<td>&lt;0.001</td>
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<tr>
<td>Peak PRA</td>
<td>11.1 ± 25.7</td>
<td>5.6 ± 19.3</td>
<td>0.002</td>
</tr>
</tbody>
</table>

Conclusions

- Our study demonstrates that despite having more risk factors and higher rates of delayed graft function and acute rejection, long-term GFR following transplantation are similar to that of non-diabetic patients.
- Despite the increased operative and medical risk in diabetic patients, unselected kidneys function well in surviving recipients.

References