The importance of the first year of kidney transplantation in the presence of left ventricular hypertrophy

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LETTER OF RESEARCH

Patients with chronic kidney disease (CKD) are at risk of cardiovascular (CV) disease and increased CV mortality. Cardiac structure is altered in CKD patients, and it is known that one-third of patients will present with left ventricular hypertrophy (LVH), a prevalence that rises to 70-80% in CKD stage 5 patients. Hemodynamic changes, increased systemic blood pressure, and altered mineral metabolism contribute to this phenomenon, namely abnormally high levels of FGF23.

Long-term outcomes in kidney transplantation have improved over the last decades, and CV disease and fractures have emerged as important events in transplanted patients. Cardiovascular disease is the leading cause of death after renal transplantation, with these patients at twice the risk of death of the general population.

Based on a prospective study of a cohort of 84 patients admitted to renal transplantation who agreed to participate in a bone and CV health-related study (ClinicalTrials.gov ID NCT02751099), we performed a case-control analysis to evaluate if transplantation would impact on the echocardiographic assessment (with the reduction of uremic toxics, namely FGF23), comparing 1-year of dialysis in a patient that otherwise could be submitted to transplant, as shown in Table 1.

Nevertheless, there are limitations to this evaluation: this is an observational, unicentric study, with a reduced sample of patients. Another limitation is the fact that different operators performed the echocardiograms, and we should acknowledge that 12 months is a brief period to observe major differences in echocardiographic findings.

Other studies have shown that LVH is present in a very expressive portion of renal transplanted persons, as it was in our population, where 42% had LVH. Even so, we could find a reduced of its percentage after 1-year of transplant, which we did not find in waiting list patients.

Although a 12-month period is very short to observe long-term modifications in cardiac structure, we found that LVH was reduced after 1-year of transplantation, reinforcing the benefits of transplantation in CKD patients.

Table 1
Comparisons of two cohorts: transplanted cohort (cases) and the dialysis cohort (controls)

<table>
<thead>
<tr>
<th></th>
<th>Cases cohort (n=69)</th>
<th>Control cohort (n=69)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>53.0 (41.0 – 62.0)</td>
<td>48 (39 – 55)</td>
<td>0.166</td>
</tr>
<tr>
<td>Male gender (%)</td>
<td>69.6%</td>
<td>53.3%</td>
<td>0.181</td>
</tr>
<tr>
<td>Dialysis vintage (months)</td>
<td>55.0 (42.0 – 84.0)</td>
<td>50 (36 – 74)</td>
<td>0.201</td>
</tr>
<tr>
<td>LVMI (g/m²) at baseline</td>
<td>107 (91.5 – 140.5)</td>
<td>104 (92 – 155)</td>
<td>0.934</td>
</tr>
<tr>
<td>LVH (%) at baseline</td>
<td>42%</td>
<td>45%</td>
<td>0.163</td>
</tr>
<tr>
<td>LVMI (g/m²) at the end</td>
<td>108.5 (98-138)</td>
<td>120 (108 – 138)</td>
<td>0.258</td>
</tr>
<tr>
<td>LVH (%) at the end</td>
<td>39.4%</td>
<td>60%</td>
<td>0.005</td>
</tr>
</tbody>
</table>

Statistical analysis: Wilcoxon rank-sum test. LVMI – left ventricular mass index; LVH – left ventricular hypertrophy.

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Ethical statement: This study has been reviewed by the appropriate ethics committee and has therefore been performed in accordance with the ethical standards laid down in an appropriate version of the 2000 Declaration of Helsinki as well as the Declaration of Istanbul 2008. As stated clearly in the text, all persons gave their informed consent prior to their inclusion in the study.

References


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