Left-sided Donor Nephrectomy Predisposes Living Kidney Donors to Latent Adrenal Insufficiency with Symptoms of Fatigue and Inferior Quality of Life

Thomas Schachtner, MD 1,2,3 and Petra Reinke MD, PhD 3
1Department of Nephrology and Internal Intensive Care, Campus Virchow Clinic, Charité University Medicine Berlin, Germany
2Berlin-Brandenburg Center of Regenerative Therapies (BICRT), Berlin, Germany
3Berlin Institute of Health (BIH) - Charité and Max-Delbrück Center, Berlin, Germany

INTRODUCTION

It took some decades to establish living kidney donation as a routine clinical procedure in Germany being only rarely carried out until the early 1990s. The enormous increase in the number of living kidney donations has been attributed to the increasing waiting time, ABO incompatible transplantation, and a liberalization of organ donor criteria. Numerous studies assessing the long-term health outcome of living kidney donors suggest minimal health risks with very low risk of ESRD. However, donors, who constitute a highly selected sample, might develop health problems that would not have occurred if they had not been donated from. These complications particularly include the development of post-donation hypertension and symptoms of tiredness and fatigue.

PATIENTS AND METHODS

Cross-sectional study: We retrospectively analyzed all living donors undergoing donor-nephrectomy between 1998 and 2013. We performed a questionnaire-based survey using the standardized short form-8 questionnaire (SF-8). In addition, an open questionnaire was used to address for short- and long-term medical complications. In total, 215 of 256 completed the questionnaire and could therefore be included in the analysis, which constitutes a response rate of 84%. The main objectives of our retrospective study were: (1) What impact does living kidney donation have on quality of life? (2) What factors predispose living kidney donors to impairment of quality of life? (3) What factors predispose living kidney donors to hypertension and symptoms of fatigue?

Prospective study: We prospectively performed a study of 27 living donors undergoing donor-nephrectomy between 2014 and 2015. Morning cortisol and ACTH levels were performed at baseline and +6 months post donation. Data were compared between right- and left-sided donation. Due to the observed impact of donor kidney size on quality of life, we hypothesized that left-sided donor nephrectomy may predispose donors to impairment of the left adrenal gland.

RESULTS

Table: PCS above average (n=73) PCS at average (n=72) PCS below average (n=70) P value

<table>
<thead>
<tr>
<th>Age, yr</th>
<th>55 (27/58)</th>
<th>54 (28/54)</th>
<th>52 (22/60)</th>
<th>0.002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male, n (%)</td>
<td>40 (55)</td>
<td>28 (39)</td>
<td>26 (38)</td>
<td>0.111</td>
</tr>
<tr>
<td>Right side, n (%)</td>
<td>21 (33)</td>
<td>30 (41)</td>
<td>22 (31)</td>
<td>0.225</td>
</tr>
<tr>
<td>Left complications, n (%)</td>
<td>12 (29)</td>
<td>17 (23)</td>
<td>10 (14)</td>
<td>0.178</td>
</tr>
<tr>
<td>Psychological problems</td>
<td>3 (4)</td>
<td>2 (3)</td>
<td>1 (2)</td>
<td>0.388</td>
</tr>
<tr>
<td>Chronic pain</td>
<td>19 (25)</td>
<td>22 (29)</td>
<td>14 (20)</td>
<td>0.300</td>
</tr>
<tr>
<td>Tiredness/chronic fatigue</td>
<td>14 (20)</td>
<td>17 (23)</td>
<td>9 (13)</td>
<td>0.015</td>
</tr>
<tr>
<td>Pain/drugs, n (%)</td>
<td>21 (28)</td>
<td>24 (32)</td>
<td>17 (24)</td>
<td>0.300</td>
</tr>
</tbody>
</table>

In summary, our results strongly indicate that the side of donor nephrectomy has major impact on physical and mental quality of life in living donors. No differences were observed for ACTH levels at any time between both groups.

CONCLUSIONS

1. Our results indicate that living kidney donation has an impact on physical and mental quality of life in long-term follow-up. Here, the impairment on quality of life is characterized by the presence of long-term complications.

2. Our results strongly indicate that the side of donor nephrectomy has major impact on physical and mental quality of life in long-term follow-up.

3. Impaired function of the left adrenal gland due to injury of adrenal vessels may be an explanation for the higher incidence of left-sided donors to hypoadrenalism.

REFERENCES

1. Our results indicate that living kidney donation has an impact on physical and mental quality of life in long-term follow-up. Here, the impairment on quality of life is characterized by the presence of long-term complications.

2. Our results strongly indicate that the side of donor nephrectomy has major impact on physical and mental quality of life in long-term follow-up.

3. Impaired function of the left adrenal gland due to injury of adrenal vessels may be an explanation for the higher incidence of left-sided donors to hypoadrenalism.

REFERENCES

1. Our results indicate that living kidney donation has an impact on physical and mental quality of life in long-term follow-up. Here, the impairment on quality of life is characterized by the presence of long-term complications.

2. Our results strongly indicate that the side of donor nephrectomy has major impact on physical and mental quality of life in long-term follow-up.

3. Impaired function of the left adrenal gland due to injury of adrenal vessels may be an explanation for the higher incidence of left-sided donors to hypoadrenalism.

REFERENCES

1. Our results indicate that living kidney donation has an impact on physical and mental quality of life in long-term follow-up. Here, the impairment on quality of life is characterized by the presence of long-term complications.

2. Our results strongly indicate that the side of donor nephrectomy has major impact on physical and mental quality of life in long-term follow-up.

3. Impaired function of the left adrenal gland due to injury of adrenal vessels may be an explanation for the higher incidence of left-sided donors to hypoadrenalism.

REFERENCES

1. Our results indicate that living kidney donation has an impact on physical and mental quality of life in long-term follow-up. Here, the impairment on quality of life is characterized by the presence of long-term complications.

2. Our results strongly indicate that the side of donor nephrectomy has major impact on physical and mental quality of life in long-term follow-up.

3. Impaired function of the left adrenal gland due to injury of adrenal vessels may be an explanation for the higher incidence of left-sided donors to hypoadrenalism.