Liver Donation and Transplantation in Saudi Arabia

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Abstract

Objectives: The aim of the study was to evaluate and analyze the results of liver transplants from living and deceased donors in Saudi Arabia.

Materials and Methods: We performed a retrospective study from the National Registry reported to the Saudi Center for Organ Transplantation on 616 living donors and deceased donors between 2004 and 2010. Data included donors’ characteristics and acceptance rates of livers from deceased donors, recipient’s status posttransplant, follow-ups, and patient survival.

Results: A total of 612 cases from deceased donors consented for liver donation of whom 402 cases (65.7%) were retrieved; 332 of them (82.3%) were transplanted. The mean age of the deceased donors was 33.2 years. Regarding living-donor liver transplants, 285 transplants were performed mostly from parent to offspring or offspring to parent. The mean age of the donors was 26.6 years and male/female ratio was 3/1. The mean follow-up was 745 days, and the mean posttransplant stay in hospital was 28.2 days. There were 11 cases with primary nonfunctioning grafts. At the end of the follow-up, 532 patients were alive (88%) and 58 patients died (10%). The patient survival at 3 years and the estimated 5-year survival were 87.2% and 77.1%.

Conclusions: The outcome of liver transplanting in Saudi Arabia is comparable to international levels. However, the need to increase the acceptance rate and the use of procured livers requires more effort in managing deceased donors. Both living-donor and deceased-donor liver transplants should be continued in Saudi Arabia to meet the ever-increasing demand of patients with end-stage liver disease.

Key words: Deceased donors, Living donors, Liver transplant, Saudi Arabia

Introduction

Liver transplant has expanded to become the second solid organ to be transplanted after kidneys.1 Currently, nearly 24,000 livers are transplanted worldwide; 18% are from living donors.

In Saudi Arabia, the first deceased-donor liver transplant was performed in 1990 and the first living-donor liver transplant was performed in 1998. There are currently 4 liver transplant centers in Saudi Arabia, and almost 150 liver transplants are performed annually (7.5 cases/pmp).2 The estimated number of deaths from liver disease in Saudi Arabia is 743; this is equal to 0.85% of all causes of death in Saudi Arabia. The most frequent causes of liver failure are infection with hepatitis B and C viruses.3 A total of 1240 liver transplants (569 are from living donors and 671 cases from deceased donors) were performed from the start of the program until the end of 2012.2 To evaluate the follow-up and outcome of liver transplants in Saudi Arabia, we studied a cohort during a 6-year period from 2004 to 2010.

Materials and Methods

We performed a retrospective study from the National Registry of the Saudi Center for Organ Transplantation on 616 living donors and deceased donors from 2004 to 2010. Data included donors’ characteristics and acceptance rates for deceased donors.
donors consented livers, recipient’s status posttransplant, follow-up and patient survival. Figure 1 shows the active centers and their activities. The study was approved by the Ethical Review Committee of the institute. All protocols conformed with the ethical guidelines of the 1975 Helsinki Declaration.

Results

A total of 612 cases were from deceased donors and 402 cases (65.7%) were recovered; 331 of them (82.3%) were transplanted, with mean age of the donor being 33.2 years. Regarding living donors, 285 transplants were performed, mainly from parent to offspring or offspring to parent, with a mean age of the donor being 26.6 years, and a male:female ratio of 3:1. Figure 2 shows the outcome of the consented cases for deceased liver donation. The mean follow-up was 745 days, and the mean posttransplant stay in hospital was 28.2 days; 13 cases (3%) had a primary nonfunctioning graft. At the end of the follow-up, there were 532 active patients (88%), while 58 died (10%); 491 of the active patients (80%) were doing well at home. Patient survival at 3 years and the estimated 5-year survival were 87.2% and 77.1%. Table 1 shows the details of follow-up and survival of all the recipients.

Discussion

Our results show the activities and outcomes of liver transplant are satisfactory in Saudi Arabia and rank well in liver transplants worldwide.

Currently, the country with the largest number of liver transplants averages around 28 cases pmp annually, while the average is 7.5 cases pmp in Saudi Arabia (4.5 cases pmp from living donors and 3 cases pmp from deceased donors). This ratio is close to the neighboring country Turkey (9 cases pmp from living donors and 4 cases pmp from deceased donors) and comparable with Iran (1 case pmp from living donors and 7 cases pmp from deceased donors), and more advanced than Egypt (3.5 cases pmp from living donors with no cases from deceased donors). The patient survival after a liver transplant in developed countries is 82% at 3 years and 75% at 5 years. Our study results showed similar comparable patient survival rates.

The outcomes of liver transplanting in Saudi Arabia is comparable to international levels. However, the need to increase the acceptance rate and use of procured liver from deceased donors requires more effort. Both living-donor and deceased-donor liver transplants should be increased in Saudi Arabia to meet the ever-increasing demand of patients with end-stage liver disease.

Table 1. Details of the Patients’ Follow-Up

<table>
<thead>
<tr>
<th>Status of Patients</th>
<th>Deceased Donors</th>
<th>Living Donors</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>280 (52.6%)</td>
<td>252 (47.4%)</td>
<td>532</td>
</tr>
<tr>
<td>Died</td>
<td>33 (56.9%)</td>
<td>25 (43.1%)</td>
<td>58</td>
</tr>
<tr>
<td>Lost to follow-up</td>
<td>7 (53.8%)</td>
<td>6 (46.2%)</td>
<td>13</td>
</tr>
<tr>
<td>Primary nonfunction</td>
<td>11 (84.6%)</td>
<td>2 (15.4%)</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>331 (53.7%)</td>
<td>285 (46.3%)</td>
<td>616</td>
</tr>
</tbody>
</table>

References