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Severe Psychiatric Problems in Right Hepatic Lobe Donors for Living Donor Liver Transplantation

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Abstract

Background—The morbidity and mortality from donation of a right hepatic lobe for living donor liver transplantation (LDLT) is an important issue for this procedure. We report the prevalence of severe psychiatric postoperative complications from the Adult-to-Adult Living Donor Liver Transplantation Cohort study (A2ALL), which was established to define the risks and benefits of LDLT for donors and recipients.

Methods—Severe psychiatric complications were evaluated in all donors from the A2ALL study who were evaluated between 1998 and February 2003.

Results—Of the 392 donors, 16 (4.1%) had one or multiple psychiatric complications, including three severe psychiatric complications (suicide, accidental drug overdose, and suicide attempt).

Conclusions—Despite extensive preoperative screening, some donors experience severe psychiatric complications, including suicide, after liver donation. Psychiatric assessment and monitoring of liver donors may help to understand and prevent such tragic events.

Keywords

Transplantation; Psychiatric; Morbidity; Liver

The spectrum of complications experienced by donors in living donor liver transplantation (LDLT) has been described in a number of publications. As many as 67% of donors develop

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postoperative complications (1–4). Most of the other reported problems are typical for a major abdominal surgery, including wound infection, blood transfusion, and reoperation. However, there are very few data describing psychiatric complications in living liver donors, in part, because of their infrequent occurrence. In addition, almost all of the data on donor complications are derived from either single-center reports or transplant center survey data, neither of which is particularly well-suited to examine donor psychiatric problems. Single-center reports have the advantage of complete data collection but include small numbers of patients. As a result, uncommon events, such as psychiatric complications, may be missed or underappreciated. Surveys of LDLT centers include more patients but have the disadvantages of retrospective data collection, absence of consensus definitions of complications between centers and, in some cases, inadequate donor follow-up. All of these circumstances could lead to underreporting of complications. The Adult-to-Adult Living Donor Liver Transplantation Cohort Study (A2ALL) is uniquely designed to study uncommon complications, such as psychiatric events, because of (1) the large number of donors studied, (2) consensus definitions of complications at all centers, and (3) dedicated research coordinators to ensure completeness of data collection. In this report, we describe the prevalence and type of severe psychiatric complications in the 392 donors enrolled in the A2ALL study.

METHODS

A2ALL includes nine U.S. liver transplantation centers (5). Between January 1, 1998, and February 28, 2003, these centers evaluated 1101 donor candidates for 819 potential LDLT recipients. Among those donor candidates, 392 had a completed donation. Using standardized forms, data were retrospectively collected on all donor and recipient candidates. The study was approved by the Institutional Review Boards and Privacy Boards of the Data Coordinating Center (DCC) and each of the nine participating transplant centers. Psychiatric evaluations were performed at the discretion of each center. All donor candidates in the cohort did not undergo psychiatric evaluation before donation.

All postdonation complications were tracked. The Clavien Classification system (6) was used to define and grade the severity of complications. The Clavien system defines a complication as “any deviation from the normal postoperative course.” The complication’s severity is established using a system that includes interventions/medications that are required to treat or resolve the event, and outcomes of the event. Complications are graded from 1 (least severe) to 4 (most severe). All reported information on psychiatric complications and deaths of donors was reviewed. Patients with any psychiatric complication were identified, and detailed questionnaires were completed using in-depth chart review for patients with severe psychiatric complications. (Psychiatric complications that were considered life-threatening, i.e., Grade 3, or caused death, i.e., Grade 4, were considered “severe”). Descriptive statistics included proportion, median, and range as appropriate. All analyses were performed using SAS version 9.1 (SAS Institute, Cary, NC).

RESULTS

Of the 392 donors, 16 (4.1%) had one or multiple psychiatric complications (12 depression, 2 anxiety, 1 bipolar disorder, 1 accidental overdose, 1 insomnia, 1 crying episodes, 1 worsening of obsessive-compulsive disorder, 2 substance abuse), including 3 severe psychiatric complications (suicide, accidental drug overdose, and suicide attempt). The median postoperative follow-up was 6 months (range, 3 days to 5.6 years). The 3 severe psychiatric complications are described herein.

Case 1 was a 50-year-old man who donated to his niece. He was under psychiatric care before and after donation for bipolar disorder and treated with clonazepam. He was deemed to be emotionally stable and proceeded to liver donation. His postoperative course was complicated by a middle hepatic vein thrombosis, abdominal discomfort, and fatigue. He died of a self-inflicted gunshot wound to the head 22 months after donation. Case 2 was a 35-year-old man who donated to his brother. Postoperatively, he developed a pleural effusion, ileus, and mild urinary retention. He had no psychiatric history but had counseling before donation related to a divorce. He died of a drug overdose 23 months after donation. Case 3 was a 23-year-old man who donated to his father, with no posthepatectomy complications. Nine months after donation following a break-up with his significant other, he required psychiatric admission twice within 2 months after attempting suicide by slashing his wrists. The recipients of all three donors had minimal postoperative complications and were alive and well at the time of the donor suicide or suicide attempt.

DISCUSSION

The current understanding of the psychiatric problems experienced by living liver donors is very limited. There are only a few published reports regarding the frequency and nature of psychiatric complications in this group of patients. Walter et al. (7) assessed psychosocial stress in 46 donors 6 months after donation. They reported that 11% of the donors had an “enhanced perception of stress.” Goldman reported outcomes in 20 living liver donors to pediatric recipients and found two marital dissolutions and one adjustment disorder in this cohort (8). In Japan, psychiatric problems were described in 31 LDLT donors in whom major depressive disorder occurred in three patients (10%) (9). There are reports of depression and completed suicides in cases of living donor kidney transplantation. Johnson et al. (10) analyzed outcomes in 524 living kidney donors in which 23% of respondents experienced self-reported depression after surgery and 15% reported depression within one month before the survey. In addition, three suicides have been reported in living kidney donors (11, 12).

The major focus of complications in living liver donors has been directed toward surgical complications occurring in the immediate postoperative period. However, psychiatric complications may occur long after surgery. During this phase of postoperative recovery, assessment of donors at most centers may be very limited or nonexistent. Beavers et al. (13) reported practice patterns of long-term follow-up in LDLT donors in the United States. At 1 year after the donor surgery, only 25% of centers had scheduled clinic visits with the donor, only 14% required blood chemistries, and only one program administered a follow-up survey of the donors. Without careful donor monitoring during the late phase of postoperative recovery, physicians at LDLT centers are unlikely to recognize important psychiatric problems in their donors. Consequently, transplant physicians are advised to consider long-term follow-up of their donors. By doing so, the full extent of post-transplantation psychiatric problems could be identified, and those individuals could be treated. In addition, risk factors for psychiatric or psychological complications may be identified so that methods to reduce or avoid these problems could be implemented in future donors.

Our data do not explain whether living liver donors are inherently more prone to psychiatric problems or whether the stress of the evaluation and hepatectomy may increase this risk. The donor cohort is likely more physically and psychologically healthy than the general population because of the careful screening and evaluation of donor candidates. Potential donors with significant psychiatric problems identified during the evaluation routinely are rejected for donation. Many centers would have rejected donor 1 as a candidate based on the previous history of psychiatric problems. Furthermore, many centers include a psychiatric

assessment of each donor during the evaluation. In addition, previous studies have shown that the donors scored as high or significantly higher than the general population in objective measures of quality-of-life (SF-36) (14). Finally, Surman et al. (15) have suggested that donors may be so driven to donate that they may attempt to conceal underlying psychopathology. Despite these relevant factors, which would suggest a higher level of mental health in liver donors, some patients experienced severe psychiatric complications, including suicide after donation. We cannot directly attribute the donor surgery to the suicides, attempted suicides, or other less-severe psychiatric complications noted in the retrospective study, since these problems may have existed to some degree prior to donation. The national suicide rate is approximately 1/10,000. The relatively small number of patients in our cohort makes estimates of suicide rate problematic. However, two successful suicides in this small cohort are two orders of magnitude higher than the national rate, and is cause for concern.

In summary, we have shown that severe psychiatric complications occur in a small segment of living donors after donor surgery. Careful preoperative assessment and postoperative monitoring of these patients may help to understand and prevent such tragic events. Our study also highlights the need for continual clinical follow-up for living liver donors. It is our hope that future data coming from the A2ALL prospective study will continue to shed light on this issue and perhaps assist clinicians in identifying factors that may place prospective donors at increased risk for future psychological complications.

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