

# **Psychological, Social and Behavioral Characteristics of Living Donor Candidates for Adult Liver Transplantation**

**Mary Ellen Olbrisch, Ph.D., ABPP**

**Sharon M. Benedict, Ph.D.**

**Karen L. Cropsey, Psy.D.**

**Robert A. Fisher, M.D.**

**Medical College of Virginia of Virginia  
Commonwealth University, Richmond, VA**

# Background

- **The number of patients awaiting liver transplantation has grown exponentially in the past decade, while the number of cadaveric donors has remained static.<sup>1</sup>**
- **Recently, adult-to-adult living liver donation has become a viable option in Europe, Asia and the United States.<sup>2-5</sup>**
- **In 1998, the Medical College of Virginia established the first serious U.S. program for adult related and non-related living donors to adult recipients.**

## **Background (cont.)**

- **Past research on living kidney donors<sup>6</sup> has shown that genetically-related donors tend to benefit from donation (i.e., increased self-esteem, approval from others, closer relationship to the recipient) and experience few negative effects.**
- **Less is known, however, about unrelated solid organ donors and there is a paucity of literature regarding living liver donors.**
- **The early success of the MCV living donor program has provided an excellent opportunity to examine the characteristics of all categories of living liver donors.**

# Method

- **Living donor candidates (N=139) were classified as either genetically related (N=77) or unrelated (N=62) to their recipient.**
- **A structured interview assessing various domains was conducted with each donor candidate.**

## Data Analysis

- **Descriptive statistics of sample characteristics**
- **Demographic and donor variables were compared using t tests and chi square analyses.**

# Structured Interview Format

- **Medical History**
- **Knowledge of Transplant Process/Donation**
  - length of surgery, expected hospitalization and recovery time, follow-up care
  - risks of surgery and potential complications
  - stated motivation for donation
  - issues of incentive and/or coercion to donate
- **Social History**
- **Behavioral Health:**
  - diet/weight control
  - caffeine use
  - tobacco use
  - alcohol and drug use
  - medical compliance history

# Structured Interview Format (cont.)

- **Social Support**
  - support system's attitude toward donation
    - supportive, ambivalent, oppose?
  - availability/breadth of support system
    - present during surgery/hospitalization?
- **Psychiatric History**
  - previous psychiatric history
  - family psychiatric history
  - affective screening
  - personality/coping style
  - psychosis screening
  - recent cognitive changes

# Demographics and Decision Process

- **Age: mean = 37.8 years; range 18-56 years**
- **Gender: 59% male**
- **Race: 85% white**
- **Time that donation was considered:**
  - **7% = < 1 week**
  - **81% = > 8 weeks**
- **97% of donors reported no coercion to donate.**
- **On average, donors were willing to assume 57% risk of serious complication or death.**
- **The majority of donors (90%) reported < 5% chance they would change their mind about donation.**

## **Donor Relationship to Recipient**

<b>Unrelated Donors (45%)</b>	<b>n</b>	<b>Related Donors (55%)</b>	<b>n</b>
<b>Spouse</b>	<b>12</b>	<b>Parent</b>	<b>2</b>
<b>Friend</b>	<b>19</b>	<b>Sibling</b>	<b>34</b>
<b>Step-relation</b>	<b>3</b>	<b>Cousin</b>	<b>6</b>
<b>In-law</b>	<b>9</b>	<b>Adult Offspring</b>	<b>28</b>
<b>Acquaintance</b>	<b>2</b>	<b>Other</b>	<b>7</b>
<b>Good Samaritan</b>	<b>11</b>		
<b>Other</b>	<b>5</b>		

# Tobacco, Alcohol & Drug Use

- **Smoking**

  - 41% = non-smokers

  - 26% = previous smokers

  - 33% = current smokers

- **Alcohol Use**

  - 35% = no alcohol use

  - 22% = heavy drinkers (3 or more drinks per occasion, 3 or more times per week)

- **Drug Use**

  - 39% = no drug use

  - 51% = distant past drug use

    - 9% = recent drug use (within the past 6 mos.)

  - 13% = history of IV drug use

# Psychopathology

- **49% of donors had a lifetime DSM-IV diagnosis as compared with 48% of the general population<sup>7</sup>**
  - **55 donors (45%) with an Axis I diagnosis**
  - **15 donors (12%) with a dual Axis I & II diagnosis**
- **Most frequent Axis I diagnoses:**
  - **Alcohol-related disorders (n=14; 24%)**
  - **Adjustment disorders (n=11; 19%)**
  - **Depression/Dysthymic Disorder (n=11; 19%)**
- **Most frequent Axis II diagnosis:**
  - **301.9, Personality Disorder NOS (n=8, 50%)**

# Comparison of Related to Unrelated Donors

- **Related donors were more likely to:**
  - **Be a smoker (43% v. 21%; p=.02)**
  - **Have an Axis I Dx (53% v. 35%; p<.05)**
  - **Have a spouse who was ambivalent or opposed donation (40% v. 35%; p=.01)**
  - **Be younger (36 v. 40 yrs. ; p=.006)**
- **Unrelated donors were more likely to:**
  - **Live with recipient (23% v. 5%; p=.002)**
  - **Volunteer (70% v. 55%; p=.07)**
  - **Be married (72% v. 40%; p<.0001)**
  - **Have more prior surgeries (1.7 v. 1.0; p=.006)**

## **Summary of Recommendations**

- **110 donors (79%) were recommended without reservation**
- **23 donors (17%) were recommended with caution**
- **6 donors (4%) were recommended for rejection**
- **Psychopathology (41%) and drug or alcohol use (31%) were the most common reasons for caution or rejection.**

# Outcome

- **74 of those evaluated (54%) became donors.**
- **25% of donors were turned down for medical reasons.**
- **6% of donors were turned down for psychiatric reasons**
- **4% were turned down for a combination of medical and psychosocial reasons.**
- **5% did not donate because the recipient became too ill or received a cadaveric organ.**
- **62% of donors with no contraindications donated, 30% of donors recommended with caution donated, while no donors who were recommended for rejection donated.**

# Comparison of Donors and Non-Donors

- **Donors were more likely to:**
  - **Have a college degree (31% v. 14%; p=.09)**
  - **Have a stable job (97% v. 83%; p<.01)**
- **Non-Donors were more likely to:**
  - **Have an Axis I Dx (58% v. 32%; p=.002)**
  - **Have an Axis II Dx (22% v. 5%; p=.004)**
  - **Be a smoker (44% v. 24%; p=.02)**
  - **Be overweight (67% v. 33%; p<.0001)**

# Discussion

- **Living donors represent a viable option for those awaiting liver transplant in the United States and abroad.**
- **Issues to be addressed in the psychosocial evaluation of living organ donors are informed consent, motivation for donating and the decision-making process, adequacy of financial and social support, behavioral and psychological health and the donor-recipient relationship.**

## **Discussion (cont.)**

- **Multi-site national and international research studies are needed regarding the reliability and validity of the psychosocial dimension of the donor candidate selection process.**
- **Areas of interest include the characteristics and motivations of living donors and the impact of donation on psychological health and well-being. Longitudinal studies which examine the impact of donation on QOL, self-esteem, coping abilities and the ongoing nature of the donor-recipient relationship are both timely and crucial.**

# References

1. **United Network for Organ Sharing (UNOS) 1999 Annual Report of the U. S. Scientific Registry of Transplant Recipients and the Organ Procurement and Transplantation Network.: Transplant Data 1989-1998.** Rockville, MD and Richmond, VA: HHS/HRSA/OSP/DOT and UNOS. 2000:July 25.
2. **Gundlach, M. Topp, S. Broring, D. Rogiers, X. Split liver transplantation.** *Annals of Transplantation.* 2000: 5:38-42.
3. **Lo, C. M. Fan, S. T. Liu, C. L., et al. Extending the limit on the size of adult recipient in living donor liver transplantation using extended right lobe graft.** *Transplantation.* 1997:63:1524-8.
4. **Sugawara, Y. Makuuchi, M. Technical advances in living-related liver transplantation.** *Journal of Hepato-Biliary-Pancreatic Surgery.* 1999:6:245-253.
5. **Marcos, A. Right lobe living donor transplantation: A review.** *Liver Transplantation.* 2000:6:3-20.
6. **Simmons, R. G. Klein Marine, S. Simmons, R. L. Gift of Life: The Effect of Organ Transplantation on Individual, Family, and Societal Dynamics.** New York:Transaction Books: 1987.
7. **Kessler, R.C. McGonagle, K.A. Zhao, S., et al. Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States.** *Archives of General Psychiatry.* 1994:51:8-19.