



Psychiatric and Psychosocial Predictors of Medical Outcome After Liver Transplantation: A Prospective, Single-Center Study

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ABSTRACT

Objective. Recognizing the potential impact of psychiatric and psychosocial factors on liver transplant patient outcomes is essential to apply special follow-up for more vulnerable patients. The aim of this article was to investigate the psychiatric and psychosocial factors predicted medical outcomes of liver transplanted patients.

Methods. We studied 150 consecutive transplant candidates, attending our outpatient transplantation clinic, including 84 who had been grafted 11 of whom died and 3 retransplanted.

Results. We observed that active coping was an important predictor of length of stay after liver transplantation. Neuroticism and social support were important predictors of mortality after liver transplantation.

Conclusion. It may be useful to identify patients with low scores for active coping and for social support and high scores for neuroticism to design special modes of follow-up to improve their medical outcomes.

PREVIOUS investigations concerning predictors of outcomes have focused primarily on medical factors, such as kind, severity, and treatment of the liver disease.¹ Some authors have shown that psychosocial factors also predict physical quality of life.¹⁻⁵ Recognizing the potential impact of psychiatric and psychosocial factors on liver transplant patient outcomes is essential, so that special psychiatric and psychological follow-up can be performed for more vulnerable patients. This study sought to investigate which psychiatric and psychosocial factors measured before transplantation predicted the medical outcome of liver transplanted patients.

METHODS

Participants

Among 150 consecutive candidates attending the outpatient transplantation clinics 84 has been transplanted. The study protocol was approved by the institutional review committee, according to ethical guidelines of the 1975 Declaration of Helsinki. We accessed these patients before and through the first year after transplantation.

Pretransplant Psychosocial and Medical Assessment

To measure the quality of life, we used the Short Form (SF)-36 Portuguese validated version, a self rating questionnaire developed by the Medical Outcome Trust.^{6,7} Total values were computed for

physical and mental components of health-related quality of life. Levels of anxiety and depression were assessed by means of the Hospital Anxiety and Depression Scale Portuguese version.^{8,9} Personality traits were assessed by means of the NEO Five-Factor Inventory (NEO-FFI), Portuguese version.^{10,11}

To access coping mechanisms, we used the Brief COPE Portuguese version,^{12,13} which is designed to provide rapid, reliable, and valid measures of the 14 domains of coping strategies: self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame. Social support was evaluated by means of The Social Support Questionnaire (SSQ6) Portuguese version.^{13,14}

The diagnosis of liver disease was achieved by an hepatologist. Child-Pugh classification was used to evaluate liver disease severity. We considered severe liver disease when a patient belonged to Child Pugh class B or C.

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Measurement of Medical Outcomes

To measure medical outcomes, we considered the length of inpatient stay after transplantation, which according to recent studies is an important marker of transplant success, mortality and the presence of post-transplantation complications.¹⁵

Statistical Methods

Statistical analysis used the SPSS 13.0 for Windows software package (SPSS, Inc., Chicago, Ill). Predictors of length of inpatient stay were evaluated by the Pearson correlation and linear regression, predictors of mortality and presence of posttransplant complications, by means of Mann–Whitney and logistic regression tests.

RESULTS

Demographics and Medical Data

Among the 150 candidates, the average inpatient length of stay among 84 who were transplanted was 22.4 days. During the first year after transplantation, 11 patients died: 8 after surgery, one at 8 months due to viral recidivism; one at 6 months due to extreme generalized edema; and another at 1 year due to decompensation of liver function. Three were retransplanted and 8 refused to continue in the study; 28 had ≥1 complication after transplantation (Table 1).

Regarding the medical diagnosis, 25 of them had familial amyloid polyneuropathy and 59 chronic liver disease. There were 34 female subjects with an overall mean age of 57.74 ± 19.34 years. Fifteen patients belonged to Child C class; 22 Child B and the remainder to Child A.

Length of Stay Predictors

Psychosocial factors from the pretransplant period that presented significant correlations with length of stay were active coping (Pearson C: -0.35), acceptance (Pearson C: -0.24*) and social support (Pearson C: -0.25; Table 2).

A multiple regression model was developed using these independent variables together with demographic factors of age, gender, education level, and employment as well as clinical variables of with/without severe liver disease), and length of stay as the dependent variable.

Applying a backward elimination method, lead to the elimination of all of the independent variables except active

Table 2. Length of Stay Predictors

	<i>r</i> = .54 <i>r</i> ² = .30	Beta	T	Sig.
Severe liver disease		-8.76	-39	.001
Active coping		-2.67	-34	.005

Linear regression.

coping and severe liver disease. By means of this model, we observed that posttransplant anxiety significantly correlated with pretransplant active coping and severe liver disease.

Mortality Predictors

Factors from the pretransplant period that presented significant associations with mortality were social support and neuroticism. A multiple linear model was estimated using these independent variables along with some demographic data (age, gender, education level, and employment) and clinical information (with/without severe liver disease), with length of stay as the dependent variable. This model revealed that posttransplant mortality significantly correlated with pretransplant social support (odds ratio [OR], 1.68; *P* = .05) and neuroticism (OR, 0.88; *P* = .03) and almost significantly with severe liver disease (OR, 3.19; *P* = .07). For conceptual reasons, we decided to accept statistical significance at *P* ≤ .1; therefore, we considered severe liver disease to be a mortality predictor (Table 3).

Complication Predictors

Our factor from the pretransplant period that presented significant associations with mortality was depression (*z* = -2.00; *P* = .04). A multiple linear model used the above independent variables along with demographic variables (age, gender, education level, and employment) and clinical variables (with/without severe liver disease), and the length of stay as the dependent variable. By means of this model, we found that posttransplant mortality correlated significantly only with pretransplant severity of liver disease. Psychosocial variables were excluded from this model.

DISCUSSION

In this work, we found that mortality after liver transplantation was predicted by neuroticism and social support; the length of stay after transplantation was predicted by active coping. Our study supports the belief that neurotic personality traits can predict mortality as observed in other clinical situations.^{16–19}

Active coping has been shown to predict clinical evolution in other medical situations.^{20–22}

Table 1. Medical Evolution (n = 84)

	<i>n</i>
Length of stay (d)	22.40 ± 10
Mortality	11
Retransplantation	3
Complications	28
Infectious	15
Vascular	4
Biliary	5
Rejection	3
Other	1
Recidive	6
Hepatitis C	4
Carcinoma	1
Alcoholic steatosis	1

Table 3. Mortality Predictors

Logistic Regression	Coef	SE	OR (95% CI)	<i>P</i>
Social support	.51	.26	1.68 (1.0–2.8)	.05
Neuroticism	-.13	.06	.88 (.78–.99)	.03
Severe Liver disease	1.83	1.02	3.19 (.07–6.2)	.07

According to our conclusions, it could be important in the pretransplant period to detect patients with non-adaptive coping mechanisms and nonadaptive personality traits for special follow-up seeking to improve their medical evolution after transplantation.

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