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Cross-sectional psychosocial evaluation of heart transplantation candidates

Roberto Sánchez, M.D. [a,b,*], Eva Baillés, Ph.D. [c], Josep Maria Peri, Ph.D. [c], Anna Bastidas, B.S.N., R.N. [c], Félix Pérez-Villa, M.D., Ph.D. [d], Antonio Bulbena, M.D., Ph.D. [a,b], Luis Pintor, M.D., Ph.D. [c]

[a] Department of Psychiatry, Institut de Neuropsiquiatria i Addiccions, Parc de Salut Mar, Barcelona, Spain
[b] Department of Psychiatry and Legal Medicine, Faculty of Medicine, Universitat Autònoma de Barcelona, Barcelona, Spain
[c] Department of Psychiatry, Institut de Neurociències, Hospital Clínic i Provincial de Barcelona, Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS) Universitat de Barcelona, Barcelona, Spain
[d] Department of Cardiology, Heart Transplantation Division, Instituto Clínico del Tórax, Hospital Clínic i Provincial de Barcelona, Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS), Universitat de Barcelona, Barcelona, Spain

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ABSTRACT

Introduction and objectives: Heart transplantation (HT) is a potentially life-saving procedure for people with terminal cardiac disease. In the last decades researchers of HT programs have attempted to identify the existence of psychosocial factors that might influence the clinical outcome before and after the transplantation. The main objective of this study was to describe epidemiological, psychiatric and psychological features of a large sample of HT candidates.
Methods: Cross-sectional, observational and descriptive study. A psychiatric and psychological assessment of 125 adult patients was performed at the moment of being included in the HT waiting list, between 2006 and 2012. The assessment consisted in: Clinical, epidemiological and psychosocial form; Spanish version of Hospital Anxiety and Depression Scale; Structured Clinical Interview for *DSM-IV* axis I disorders; Coping questionnaire (COPE); Five Factors Inventory Revised (NEO-FFI-R); Apgar-Family questionnaire and the Multidimensional Health Locus of Control scale.
Results: Axis I diagnoses were present in a 30.4% of patients. COPE showed that this group of patients used most frequently engagement strategies. Personality factors profile of NEO-FFI-R were similar to general population and locus of control scale also presented similar scores compared with other chronic diagnostic groups. Statistically significant associations were found between personality factors and COPE scales/dimensions and psychopathology, mainly neuroticism and disengagement.
Conclusions: This is the first study to assess systematically psychosocial factors in a large sample of HT candidates. We have found that around one third of these patients have a psychiatric disorder. Neuroticism and disengagement coping styles can serve as markers of emotional distress.

1. Introduction

Heart transplantation (HT) is a potentially life-saving procedure for people with terminal cardiac disease and it is considered the treatment of choice in cases of severe cardiac insufficiency refractory to medical or surgical treatment. However it is also one of the more invasive and psychologically threatening available interventions [1]. In recent years the waiting period has lengthened due to the rising demand for organs and a stagnation or decline in public willingness to provide them [2]. For these reasons, in the last decades, researchers of HT programs have explored the importance of proper patient selection and have attempted to identify the existence of psychosocial factors that might influence the clinical outcome before and after the transplantation [3,4].

Although evidence from the literature is limited and the role of each factor is unclear, psychosocial criteria are taken into account in the selection of candidates for their inclusion in the waiting list [5]. There is a relative absence of evidence-based guidelines for pretransplant psychosocial screening, but the most important factors identified in the studies are psychiatric morbidity and substance-related disorders, personality traits, medical compliance and adherence with medication, coping strategies, received family and social support and sociodemographic factors [4–8].

Regarding psychopathology, the period between being listed for transplantation and receiving a heart is often particularly difficult and very stressful; a majority of patients experience a marked worsening in their physical condition [2]. Rates of psychiatric morbidity of around 50% have been found in people undergoing HT, mainly depressive and anxiety disorders [9–11]. These findings have also

* Corresponding author at: Department of Psychiatry, Institut de Neuropsiquiatria i Addiccions – Parc de Salut Mar, C/Prat de la Riba, 171, 08921, Sta. Coloma de Gramenet (Barcelona). Tel.: +34 934628900; fax: +34 933923085.
E-mail address: 39639rsg@gmail.com (R. Sánchez).

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been shown in other solid-organ transplant populations. For example, around 25% of patients awaiting lung transplantation present a psychiatric disorder [12]. The preoperative psychiatric morbidity and overall mental distress are very important factors because they may influence aspects such as the psychosocial functioning, the outcome of surgery and the prognostic and health-related quality of life during the period following transplantation [13].

The presence of substance-related disorders, personality disorders or a history of medication nonadherence are powerful predictors of failure in compliance with the medical regimen and, therefore, are associated with increased morbidity and mortality in HT patients [5,6]. Personality traits refer to a dimensional taxonomy to understand normal personality functioning and do not necessarily reflect psychopathology. Patients with low conscientiousness also have poorer treatment adherence [5].

More recently, coping has been examined as a predictor of treatment outcome in the transplant population. In HT patients, the use of avoidant coping before transplantation increased risk for developing a psychiatric disorder after transplant. However, different studies have found that HT candidates use positive coping strategies more frequently than maladaptative coping strategies such as denial, avoidance or disengagement [8,14].

Finally, factors like low level of family and social support, low socioeconomic status and worse background health characteristics contribute to an unsatisfactory HT outcome due to worse adherence to the therapeutic regimen [15].

The present study had two purposes. The main objective was to describe epidemiological, psychiatric and psychological features of a large sample of HT candidates. Our secondary goal was to determine which of these factors, mainly personality and coping strategies, were associated to the presence of psychopathology during the waiting list period.

2. Materials and methods

2.1. Design

Cross-sectional, observational and descriptive study.

2.2. Sample

One hundred twenty-five adult patients included consecutively in the waiting list for HT between 2006 and 2012 were evaluated. All the patients were previously assessed by the HT medical team committee of Hospital Clínic of Barcelona and were suitable for being included in the program and met general cardiology criteria for HT candidates (HT is indicated in those patients of severe heart failure who underwent all other medical and surgical options, the heart failure being severely disabling with severe risk of death). Each patient must fulfil all the complementary inclusion criteria: a) aged over 18 years and under 75 years; b) lack of mental retardation; c) minimal hygiene, health care and psychosocial conditions in order to guarantee the evaluation and d) sign informed consent form. The study protocol was approved by the ethical committee board of the Hospital Clinic of Barcelona.

2.3. Assessments and procedure

A cross-sectional psychiatric and psychological assessment of the candidates was performed at the moment of being included in the HT waiting list. The assessment consisted of the following instruments:

1. Clinical, epidemiological and psychosocial form which includes the following data: age, gender, employment status, cardiac disease duration, age of onset of illness, medical comorbidities, pre-transplant cardiac diagnosis, familiar and personal psychiatric history and mental disorders at baseline assessment.
2. Spanish version of the Hospital Anxiety and Depression Scale (HADS) [16,17]. HADS is a 14-item self-report screening scale that was originally developed to indicate the possible presence of anxiety and depression states in the setting of a medical no-psychiatric outpatient clinic. The cut-off points for the screening are 12 for psychiatric morbidity and 8 for subscales of depressive and anxiety disorders.
3. Structured clinical interview for *DSM-IV* axis I disorders, clinician version of the American Psychiatry Association [18].
4. Coping questionnaire (COPE) [19]. This instrument shows the frequency of using each of the emotional and behavioral responses to a stressful situation. It is a 60-item theoretically driven self-report questionnaire that addresses different ways of coping with problems and stress. In its dispositional version these items form 15 scales and, after a factor analysis, we can obtain three factors (engagement, disengagement, and help-seeking). Due to statistical concerns, humor and drugs scales were not included in any dimension [20].
5. The NEO Five Factor Inventory Revised (NEO-FFI-R) for the measurement of the five main personality factors. NEO-FFI-R is a shortened version of the NEO Personality Inventory Revised [21]. This hetero-administered questionnaire consists of 60 items that measures the five main personality factors: neuroticism (adjustment versus emotional instability), extraversion (quantity and intensity of interpersonal interaction, activity level, need for stimulation and capacity for joy), openness to experience (proactive seeking and appreciation of experience for its own sake, toleration for and exploration of the unfamiliar), agreeableness (quality of one's interpersonal orientation along a continuum from compassion to antagonism in thoughts, feelings, and actions) and conscientiousness (individual's degree of organization, persistence, and motivation in goal-directed behavior). Spanish validation of the inventory was used [22].
6. Spanish version of family functioning questionnaire (Apgar-Family) [23]. This questionnaire can be self-reported or heteroadministered and consists of five Likert items to assess the perception of the person on family function. The total score is between 0 and 10. Family is considered functional when the score is ≥ 7; between 4 and 6 indicates mild family dysfunction, and ≤ 3, severe family dysfunction.
7. The Multidimensional Health Locus of Control evaluates the health-related attributional style and individuals' beliefs regarding the extent to which they are able to control or influence outcomes. Forms A and B are the "general" health locus of control scales that have been in use since the mid to late 1970s. Form C was designed to be "condition-specific" and can be used when studying people with an existing health/medical condition. It is a self-administered 18-item Likert questionnaire and the score for each item is between 1 (strongly disagree) and 6 (strongly agree). These items can be grouped into the four classical independent subscales defined by Wallston et al.: doctors (score ranked between 3 and 18), other powerful people (score ranked between 3 and 18), chance (score ranked between 6 and 36) and internality (score ranked between 6 and 36). Spanish adaptation of the questionnaire was used but joining the two first subscales because they include similar aspects [24–26].

2.4. Statistical methods

A descriptive analysis of the sample that included the main sociodemographic and clinical variables was performed. The analyses of the questionnaires were carried out with obtaining mean scores and their standard deviations. Coping scales and dimensions of the COPE questionnaire were expressed in percentage scores.

After testing the normality of the distribution and goodness of fit of quantitative variables, with Kolmogorov–Smirnov test, comparative analysis was done to determine factors associated with the presence of psychopathology (defined by scores ≥ 8 in each HADS subscale and/or *DSM-IV* Axis I diagnosis). Levene's test for equality of variances was