

P. Ramirez  
M. Miras  
J. A. Pons  
C. Maria  
F. Sanchez  
R. Robles  
J. Lujan  
P. Rodriguez  
J. M. Perez Abad  
F. Acosta  
D. Megias  
P. Parrilla

## Life quality of patients undergoing liver transplantation

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F. Sanchez · R. Robles · J. Lujan  
P. Rodriguez · J. M. Perez Abad  
P. Parrilla  
Department of Surgery,  
Liver Transplant Unit,  
Virgen Arrixaca University Hospital,  
Murcia, Spain

M. Miras · J. A. Pons · C. Marin  
Department of Gastroenterology,  
Liver Transplant Unit,  
Virgen Arrixaca University Hospital,  
Murcia, Spain

F. Acosta  
Department of Anaesthetics,  
Liver Transplant Unit,  
Virgen Arrixaca University Hospital,  
Murcia, Spain

D. Megias  
Department of Psychiatry,  
Virgen Arrixaca University Hospital,  
Murcia, Spain

**Abstract** The aim of this study was to assess the life quality of a group of patients who had undergone liver transplantation using (1) a psychological test to evaluate family relations, work activity, emotional state and social relationships; (2) the quantification of hospital dependence and degree of fitness for work. Included in the study were 32 patients using the following criteria: diagnosis of hepatic cirrhosis and minimum posttransplant follow-up of 6 months. The average age of the study population was  $44.8 \pm 10.5$  years; there were 23 males and 9 females, with an average follow-up of 15 months. The psychological test used was the Quality of Life Scale (QLS) which consists of 21 items each scoring from 1 to 6 points. The questionnaire was completed before transplantation by all the patients, and after transplantation by 32 patients at 6

months, 20 at 12 months and 12 at 24 months. Hospital dependence was evaluated by the number of admissions and number of days per admission. Lastly, we compared fitness for work before transplantation and at 1 and 2 years after transplantation. The QLS test showed a post-transplant improvement in the four aspects assessed, particularly in the personal aspects (emotions and family) ( $P < 0.001$ ). Hospital dependence following liver transplantation decreased significantly compared with the pretransplant situation ( $P < 0.01$ ). Finally, the post-transplant percentage of unfitness for work decreased with time, reaching a significant differences 2 years after transplantation ( $P < 0.05$ ). /

**Key words** Liver transplant  
Quality of life · Long-term results  
Hospital dependence

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### Introduction

The progress made over the last decade in immunosuppression [1, 2], surgical and anaesthetic techniques [3, 4], preservation of organs [5], knowledge of the natural history of liver disease [6, 7], and postoperative management of liver transplant patients [8, 9] has contributed to

the survival of these patients which now stands at 65–85% at 1 year and 45–65% at 5 years [8, 10, 11], according to series and depending on the liver disease that indicated the transplant and the time to perform it [6, 12, 13].

However, the factors indicating post-liver-transplant life quality include not only patient survival and being

free of the disease that led to the transplant, but also the state of health with regard to emotions, and family, social and work relationships [14, 15, 16].

The aim of the present study was to assess the quality of life of a group of patients who had undergone orthotopic liver transplantation (OLT) compared with their pretransplant situation using: (1) a psychological test (The Quality of Life Scale, QLS) [17] to assess their state of health with regard to emotion, and family, social and work relationships; and (2) quantification of hospital dependence and degree of fitness for work.

## Patients and methods

### Patients

The study included a total of 32 OLT patients diagnosed with hepatic cirrhosis, with a minimum post-transplant follow-up of 6 months. The age of the patients was (mean  $\pm$  SD)  $44.8 \pm 10.5$  years; 23 were males and 9 females. Following Child-Pugh's classification [18], 19 were grade C and 13 grade B.

### Methods

The quality of life before and after OLT was assessed using: (1) the QLS test; (2) hospital dependence, expressed as the number of admissions per year and the sum of the number of days of all the admissions in 1 year; and (3) the degree of fitness for work.

The QLS is a semi-structured interview consisting of 21 items [17] each item having a minimum score of 1 and a maximum of 6. In each assessment, therefore, the lowest score possible is 21, and the highest 126, corresponding to the best life quality possible.

The life quality assessment using the QLS test together with calculation of the degrees of hospital dependence and fitness for work was carried out before OLT, then 6 months after OLT in 32 patients, 12 months after OLT in 20 patients and 24 months after OLT in 12 patients, according to their follow-up. In calculating the degree of hospital dependence at 6 months, we did not consider the postoperative hospital stay.

For the statistical analysis of the results we used the means comparison test and Pearson's Chi-squared test [19].

## Results

### QLS test

The overall score of the patients in the QLS test was higher after OLT than before (Fig. 1) with statistically significant differences. From  $78.2 \pm 15.3$  points before OLT, the patients' score rose to  $91.9 \pm 17$  points at 6 months postoperatively ( $P < 0.001$ ),  $102.0 \pm 13.2$  points at 12 months ( $P < 0.01$ ) and  $102.4 \pm 15.9$  points at 24 months ( $P < 0.01$ ).

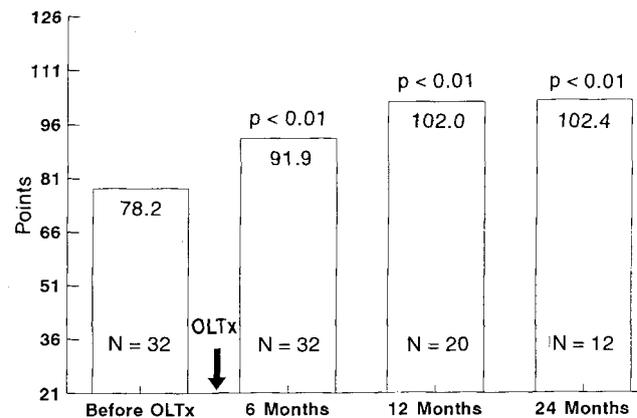


Fig. 1 The mean scores of the patients in the QLS test before and after transplantation

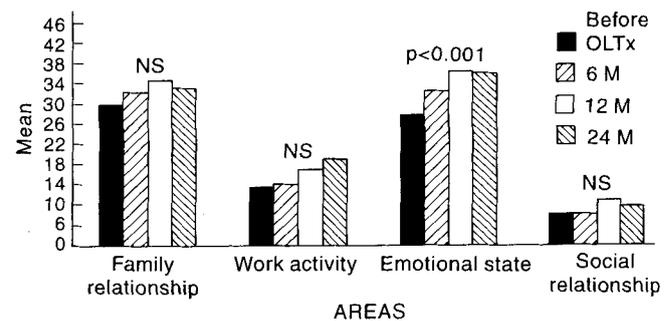


Fig. 2 The postoperative increase in the QLS was fundamentally due mostly to the emotional aspects

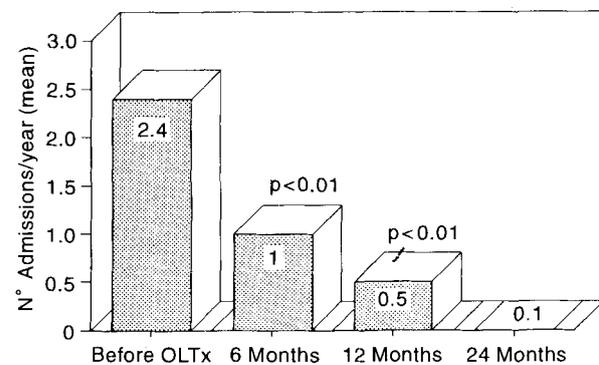
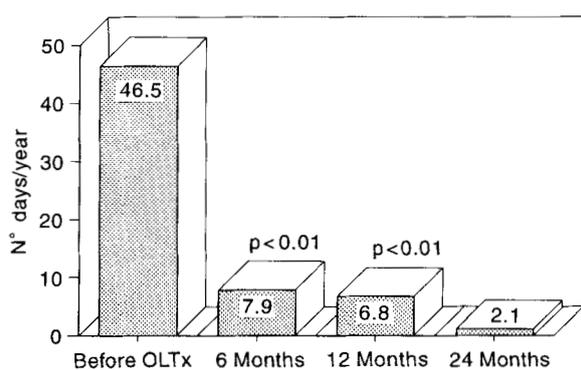
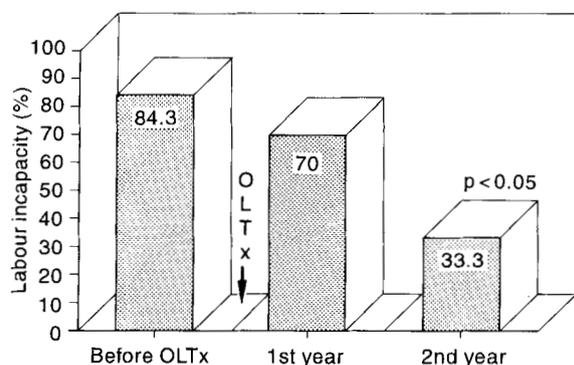


Fig. 3 The number of hospital admissions per year before and after transplantation

Analysing the postoperative increase in score in terms of psychological aspects we found that the improvement was fundamentally due to the emotional and sexual aspects ( $P < 0.001$ ). The post-transplant score also improved in family, social and work relationships, but without statistically significant differences (Fig. 2).



**Fig. 4** The number of day of hospital admission before and after transplantation



**Fig. 5** The degree of unfitness for work before and after transplantation

#### Hospital dependence

The number of hospital admissions per year dropped significantly from  $2.4 \pm 1.4$  before OLT to  $1 \pm 1$  at 6 months postoperatively ( $P < 0.01$ ),  $0.5 \pm 0.5$  at 12 months ( $P < 0.01$ ) and  $0.1 \pm 0.1$  at 24 months (Fig. 3).

The number of days of hospital admission per year required by patients also dropped from  $46.5 \pm 29$  days before OLT to  $7.9 \pm 11$  days at 6 months postoperatively ( $P < 0.01$ ),  $6.8 \pm 13.1$  days at 12 months ( $P < 0.01$ ) and  $2.1 \pm 1$  at 24 months (Fig. 4).

#### Degree of fitness for work

The degree of unfitness for work dropped from 84.3% before transplant to 70% at 12 months postoperatively (NS) and 33.3% at 24 months ( $P < 0.05$ ) (Fig. 5).

#### Discussion

One of the indicators of life quality accepted by most authors in the long-term follow-up of patients who have

undergone liver transplantation is the assessment of the state of health in its various aspects (emotional, family, social and work) [14–17, 20, 21]. For this there are several psychological tests incorporating various psychometric characteristics that have been validated and adapted to different communities, the Nottingham being one of the most commonly used in the UK [22, 23] and the Sickness Impact Profile and Social Behavior Adjustment Schedule in the US [16]. We chose the QLS [17, 24] as it is a comprehension test similar to the 'Oregon Quality of Life Questionnaire' and 'Lehman Quality of Life Interview', it uses a quickly and easily conducted semi-structured interview (about 45 min) and, although originally applied in the US, it has previously been validated in our environment [25].

The state of health of our transplant patients, assessed by the QLS, improved in all cases at 6 months postoperatively and showed a further significant improvement at 1 year (Fig. 1). These results are in line with those of most other studies [16, 20, 23]. Analysing the improvement in the state of health by aspect, we observed that the emotional and sexual aspects show the best results (Fig. 2). The euphoria conditioned partly, by the corticoids – the basis of the immunosuppressive treatment – and partly by the psychological effect of being free of liver disease and having survived the transplant are probably the factors that condition this important early improvement [22]. In the social and work aspects the improvement in the test results appeared later, not until a year afterwards. Finally, no significant changes, were noted in post-transplant family relationships.

As an objective indicator of life quality we used hospital dramatic dependence [23]. In our experience, there is a dramatic decrease after transplant in the number of days per year that the patients need to be in hospital (Figs. 3 and 4), such that after the first year it is uncommon for them the need to be admitted, and when they are it is normally for a routine liver biopsy [23]. For liver-transplant patients this means a real possibility of being able to return to completely normal social and work activities. However, the degree of unfitness for work is higher than may be expected: 70% at 1 year and 33% at 2 years (Fig. 5). Being aged over 50 years, prolonged work inactivity before transplantation, with retirement and absolute and permanent pensions in other cases, and the absence of work activity outside the home for many of the female transplant patients, are all factors that may explain the relatively high degree of unfitness for work which persists after liver transplantation. Psychosocial support programmes could undoubtedly contribute to improving these results [26].

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