ORIGINAL ARTICLE

Health-related quality of life and affective status in liver transplant recipients and patients on the waiting list with low MELD scores

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Abstract

Background: This study seeks to examine the impact of orthotopic liver transplantation (OLT) on Health-Related Quality of Life (HRQoL) and mental health in patients with different MELD scores.

Methods: Patients who has undergone orthotopic liver transplant (OLT) or were on the waiting list for OLT were submitted to HRQoL and depression/anxiety assessment by questionnaire: Short-Form 36 (SF-36), Questions on Life Satisfaction (FLZ-M), Patient Health Questionnaire-4 (PHQ-4). Data were analysed following division of patients into three groups: pretransplant patients with a MELD score <10, ≥10, and OLT recipients.

Results: The surveys were sent to 940 consecutive patients within one week in June 2013. Of these 940 patients, 869 (92.4%) met the inclusion criteria. In total, 291 (33.5%) eligible questionnaires (OLT group: 235, MELD <10: 25; MELD _10: 31) were suitable for analysis. General health (GH), vitality (VIT), and mental health (MH) were lower in both pretransplant groups compared to the OLT group (all $p < 0.05$). Anxiety and depression were higher in the MELD <10 group than in the OLT group (anxiety: $p < 0.05$; depression: $p < 0.01$).

Discussion: Patients with low MELD scores seem to benefit from OLT with regards to HRQoL and mental health.

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Introduction

Many patients with end stage liver failure suffer from serious physical impairment such as reduced kidney function,[1] ascites[2] or recurrent hemorrhage,[3] peritonitis[4] and encephalopathy.[5] These complications are often life-threatening and after the first episode of decompensation of liver cirrhosis, the mortality rate approaches 85% within five years.[2] The only curative treatment option is orthotopic liver transplantation (OLT).

Since 2002, in the US, the allocation of deceased donor liver transplants has been based on the model for end-stage liver disease (MELD) score although for several diseases, an exceptional MELD score exists. The score is an objective assessment based on a mathematical formula using logarithmic values of serum bilirubin, serum creatinine, and institutional normalized ratio (INR). The MELD score was designed to detect patients with a high risk of mortality related to end-stage liver disease with the intention of prioritizing these patients for liver transplantation.[6] In general, patients with a MELD score of ≥15

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should be considered for the liver transplant waiting list since they profit from significant survival benefit with OLT.[7–10] Nevertheless, physical impairment and mortality rates can be increased in patients with lower MELD scores as well.[11] These impairments potentially decrease the patients' Health-Related Quality of Life (HRQoL), the person's well-being which indicates the ability to participate actively in daily life. There are several standardized measurement instruments to evaluate the HRQoL after solid organ transplantation[12,13] and the SF-36 survey is most frequently used.[14]

In addition to HRQoL, another important psychosocial outcome factor of OLT is the presence of anxiety and depression.[15,16] Mental disorders are known to have a negative impact on HRQoL.[17] Apart from that, these conditions appear to increase mortality after OLT.[15,18] Besides the Hospital Anxiety and Depression Scale (HADS),[19] the Patient Health Questionnaire (PHQ) is a frequently used instrument to measure anxiety and depression.[20] The PHQ-4 is an ultra brief version of the survey.[21]

Apart from mere survival rates, HRQoL and mental health should be considered further important outcome factors in liver transplant recipients and patients on the liver transplant waiting list. Several studies have demonstrated that the overall HRQoL improves dramatically after OLT compared to pretransplantation.[22,23] However, there is some evidence that the patients' actual liver function represented by MELD score does not appear to be related to HRQoL.[24,25] Yet, there are contradictory findings on the question of whether patients with higher preoperative MELD scores benefit more from OLT with regards to HRQoL than patients with low scores.[23,26] Furthermore, it is unclear whether HRQoL improves in patients with low MELD scores. The present study seeks to evaluate the influence of OLT at a single centre on patients on the liver transplant waiting list with low MELD scores (<10) and high MELD scores (≥10).

Methods

Study design

All surviving patients who had received OLT at the University Hospital of Leipzig between 1993 and June 2013 were identified in June 2013. Moreover, recipients of double transplants (sequential or simultaneous liver and kidney transplants) and all patients who were on the waiting list for a liver transplantation in June 2013 were included.

The written SF-36 survey form was sent to all patients via mail. Return envelopes were included free of charge. A period of two weeks was envisaged for questionnaire return. All patients who had not returned the questionnaire after two weeks were contacted a second time via mail within another 14 days. Altogether, patients had four weeks for their responses. Prior to the study, informed consent of all patients and the consent of the local ethics committee (ID: 414-12-17122012) were obtained.

Patients

The following patients were included: age between 18 and 70 years, a returned questionnaire with at least 50% of the questions answered, records of medication and patient history available.

These patients groups were analysed based on presence on the liver transplant waiting list with a MELD score <10, on the liver transplant waiting list with a MELD score ≥10 and patients who has undergone OLT. The MELD score was calculated from the patients' records and blood test results retrospectively and the latest available MELD score was added to the database.

Short Form-36

The SF-36 survey[27] includes 36 questions about current health status. It serves as an assessment tool of health-related QoL of probands over the age of 14. Eight dimensions of QoL are evaluated. These eight dimensions summarize two main sections, the physical component summary (PCS) and mental component summary (MCS).

These eight dimensions include; Physical Functioning (PF, 10 items), Role-Physical (RP, 4 items), Bodily Pain (BP, 2 items), General Health Perceptions (GH, 6 items), Vitality (VIT, 4 items), Social Functioning (SF, 2 items), Role-Emotional (RE, 3 items) and Mental Health (MH, 5 items). In each dimension, the range of possible scores is between 0 and 100 points. As a consequence, it is easy to compare between scales and patients.[28] In the present study, the standard version of the SF-36 was used. At the end of the survey period, all SF-36 questionnaires were scanned and digitalized.

Questionnaire on Life Satisfaction (FLZ-M)

The Questions on Life Satisfaction (FLZ-M) survey was used in order to assess life satisfaction.[29] It includes 8 aspects of daily life: friends/acquaintances, leisure time/hobbies, health, income/financial security, occupation/work, housing/living conditions, family life/children, partner relationship/sexuality. The possible scores for each dimension range from −12 to 20. Negative scores are an indicator of dissatisfaction whereas positive scores indicate satisfaction. If the weighted satisfaction value is 0, this means that the item is of no subjective importance to the individual. High scores indicate high subjective importance.[29]

Patient Health Questionnaire-4 (PHQ-4)

The test used in the present study is an ultra brief screening tool for anxiety and depression. It is a validated measurement instrument to detect mental disorders. It consists of 4 items. The GAD-2 detects anxiety ("Over the last 2 weeks, how often have you been bothered by (i) Feeling nervous, anxious, or on edge (ii) Not being able to stop or control worrying"). The PHQ-2 was designed to reveal depressive and anxious symptoms (Over the last 2 weeks, how often have you been bothered by (i) little interest or pleasure in doing things (ii) feeling down, depressed or hopeless). It is based on the full version of the PHQ test. For each item, there are 4 possible answers