

Improved Quality of Life in Patients with Refractory or Recidivant Ascites after Insertion of Transjugular Intrahepatic Portosystemic Shunts

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Key Words

Ascites · Cirrhosis · Quality of life

Abstract

Background: We have recently shown that the transjugular intrahepatic portosystemic shunt (TIPS) is more effective than paracentesis in the treatment of cirrhotic patients with severe ascites and can prolong survival in selected patients. Although an improved quality of life (QOL) has been suggested in these patients after the TIPS procedure, so far there are no data available to substantiate this assumption. Therefore, the aim of this study was to determine the effect of TIPS on the QOL in cirrhotic patients with refractory or recidivant ascites. **Methods:** 21 cirrhotic patients who underwent TIPS for refractory or recidivant ascites were investigated. All patients were pretreated with repeated paracentesis for at least 1 year. Before the procedure and at 3 and 6 months during follow-up, the patients themselves rated QOL, fatigue and physical performance on a visual analogue scale (range 0–100). Furthermore, QOL was determined by the QOL index (range 0–10) according to Spitzer. **Results:** Patients' rating of the QOL on the visual analogue scale significantly increased from 35 ± 25 (baseline) to 64 ± 28 (3 months), and 66 ± 24 (6 months; $p = 0.02$). Similarly, the QOL index significantly increased

from 6.9 ± 2.0 (baseline) to 8.3 ± 2.1 (3 months), and 8.6 ± 1.7 (6 months; $p < 0.001$). The increase of QOL was more pronounced in patients with complete response to TIPS. **Conclusions:** We demonstrate that TIPS for refractory or recidivant ascites improves the QOL in patients with cirrhosis. Our data indicates that this improvement is dependent on the response to therapy.

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Introduction

The transjugular intrahepatic portosystemic shunt (TIPS) improves renal function in patients with refractory ascites [1]. This effect can be observed in cirrhotic patients with functional renal failure and in patients with underlying organic renal failure [2]. It explains the positive influence of TIPS on the mobilization of refractory ascites in cirrhotic patients [3]. Recently, in a randomized controlled trial, we demonstrated a beneficial effect of TIPS on ascites and survival in patients with refractory or recidivant ascites as compared to treatment with repeated paracentesis [4]. Furthermore, patients treated with TIPS in this study tended to spend less time in hospital. These and similar observations [5] suggest an improved quality of life (QOL) after the TIPS procedure. However, there is only scarce information [6] to substantiate this assumption.

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Table 1. Characteristics of the 21 patients receiving TIPS and follow-up of liver function after TIPS placement

	Baseline	3 months	6 months
Sex, m/f	18/3	–	–
Age, years	56 ± 4	–	–
Aetiology of cirrhosis, alcohol/viral/other	15/4/2	–	–
Child-Pugh class, A/B/C	0/17/4	1/18/2	3/17/1
Serum bilirubin, mg/dl	1.9 ± 1.1	2.1 ± 1.5	1.9 ± 1.6
Serum albumin, g/dl	3.3 ± 0.5	3.4 ± 0.7	3.6 ± 0.6
Prothrombin index, %	62 ± 8	59 ± 9	65 ± 7
Serum sodium, mmol/l	129 ± 7	133 ± 5	134 ± 4
Serum creatinine, mg/dl	1.4 ± 0.4	1.2 ± 0.3	1.2 ± 0.4
Duration of intervention, min	73 ± 8		

The aim of the present study was therefore to measure the QOL of cirrhotic patients with refractory or recidivant ascites treated with TIPS.

Patients and Methods

Patients

After the end of the randomized trial comparing TIPS and paracentesis [4], 21 consecutive cirrhotic patients who underwent TIPS for refractory or recidivant ascites were investigated. Patient characteristics are shown in table 1. The diagnostic criteria of the International Ascites Club [7] were applied for refractory or recidivant ascites. All patients considered for TIPS were pretreated by repeated paracenteses with intravenous albumin infusion for at least 1 year. Patients with alcoholic cirrhosis were considered for the TIPS procedure when they had abstained from alcohol consumption for at least 3 months. Alcohol consumption was evaluated by questioning upon each visit and to the best of our knowledge all patients abstained from alcohol during the study period. TIPS was not considered for patients with hepatic encephalopathy grade 2 or higher and/or for patients with serum bilirubin concentrations >5 mg/dl. Further exclusion criteria comprised presence of hepatocellular carcinoma or severe congestive heart failure.

Protocol and QOL Assessment

The study protocol was approved by the Ethics Committee of the Faculty of Medicine at the University of Munich. Each patient gave informed written consent to participate in the study. The TIPS procedure was performed as described earlier in detail [1, 4]. All interventions were performed under analgesia using 5–10 mg midazolam and 15–30 mg pentazocine. Lactulose was routinely administered in all patients after TIPS to induce 1–2 loose stools per day. Diuretic drugs were dispensed as necessary.

Patients themselves rated QOL (0 very bad, 100 excellent), fatigue (0 not tired at all, 100 very tired), and physical performance (0 very bad, 100 excellent) on a visual analogue scale (visual analogue scale) before the procedure and at 1, 3 and 6 months during follow-up. Since all patients had been pretreated with paracentesis for at least 1 year, baseline values were considered as representative for patients undergoing paracentesis.

Furthermore, the QOL of each patient was rated on the QOL index (range 0–10) according to Spitzer et al. [8]. Briefly, 5 items, namely activity, daily living, health perception, support and outlook on life were rated 0–2 in a structured interview performed by a health professional. Hepatic encephalopathy was graded clinically according to neuropsychiatric signs [9]: grade 0 – no evidence for hepatic encephalopathy, grade 1 – patient confused with altered mood and/or behaviour, grade 2 – inappropriate behaviour, drowsiness, grade 3 – stuporous patients with marked confusion, grade 4 – coma.

A complete response to TIPS was defined as the elimination of ascites, and a partial response as the presence of ascites not requiring paracentesis. Absence of a response was defined as the persistence of refractory ascites.

Statistical Analysis

Data are given as mean ± SE and were compared by ANOVA or t-test, where appropriate. A p value <0.05 was considered statistically significant.

Results

All patients included could be evaluated at 3 and 6 months of follow-up. None of the patients had to be excluded from analysis due to inability of completing QOL assessment.

At 3 months of follow-up, 6 patients showed complete response to TIPS, 9 patients had partial response and 6 patients were classified as non-responders. At 6 months, 7 patients were devoid of ascites, 10 patients showed partial response and 4 patients were classified as non-responders.

The QOL index significantly increased from 6.9 ± 2.0 (baseline) to 8.3 ± 2.1 (3 months), and 8.6 ± 1.7 (6 months; $p < 0.001$). Similarly, patients' rating of the QOL on the visual analogue scale significantly increased from 35 ± 25 (baseline) to 64 ± 28 (3 months), and 66 ± 24 (6 months; $p = 0.02$; table 2).

Table 2. Effect of TIPS on the QOL index and self-assessment of patients' QOL using a visual analogue scale

	All patients (n = 21)	CR 3 months (n = 6)	PR 3 months (n = 9)	NR 3 months (n = 6)	CR 6 months (n = 7)	PR 6 months (n = 10)	NR 6 months (n = 4)
<i>QOL index</i>							
Baseline	6.9 ± 2.0	6.5 ± 1.2	7.2 ± 1.0	6.5 ± 2.5	6.8 ± 1.5	7.0 ± 1.0	6.5 ± 2.6
3 months	8.3 ± 2.1 ^a	9.7 ± 0.6 ^b	8.1 ± 1.0	7.1 ± 0.7			
6 months	8.6 ± 1.7 ^a				9.4 ± 0.7 ^b	8.4 ± 0.8	7.0 ± 1.0
<i>Visual analogue scale QOL</i>							
Baseline	35 ± 25	34 ± 10	42 ± 13	35 ± 15	37 ± 8	40 ± 13	35 ± 17
3 months	64 ± 28 ^a	88 ± 12 ^{b,c}	57 ± 11	48 ± 16			
6 months	66 ± 24 ^a				75 ± 14 ^b	67 ± 6	42 ± 25

CR = Complete response; PR = partial response; NR = non-responder.

^a p < 0.05 by ANOVA as compared to baseline; ^b p < 0.05 by paired t-test as compared to baseline; ^c p < 0.05 by ANOVA as compared to NR 3 months.

These changes were more pronounced in patients with complete response to TIPS than in patients with partial response or non-responders: in patients with complete response after 3 months the QOL index increased by 3.1 ± 0.6 as compared to 0.9 ± 1.0 in patients with partial response ($p < 0.05$) and to 0.6 ± 1.4 in non-responders ($p < 0.05$). After 6 months this increase was significantly higher in patients with complete response (2.6 ± 0.7) than in non-responders (0.5 ± 1.7 ; $p < 0.05$).

Similarly, there was a significantly higher increase of the complete responders' rating of their QOL after 3 months (55 ± 11) as compared to the rating of patients with partial response (15 ± 12 ; $p < 0.05$) or compared to non-responders (13 ± 4 ; $p < 0.05$). After 6 months, this increase was significantly higher in complete responders (40 ± 16 ; non-responders 7 ± 20 ; $p < 0.05$).

The grade of hepatic encephalopathy before TIPS was 0.6 ± 0.1 and did not significantly change after 3 months (0.3 ± 0.2), and 6 months (0.3 ± 0.2). Accordingly, TIPS did not significantly affect the patients' visual analogue scale rating of fatigue (25 ± 7 before TIPS) after 3 months (25 ± 6), and 6 months (27 ± 8), respectively.

Discussion

The present study provides the following main results: (1) TIPS for refractory or recidivant ascites improves the QOL in patients with cirrhosis, and (2) the improvement of the patients' QOL depends on the response to treatment.

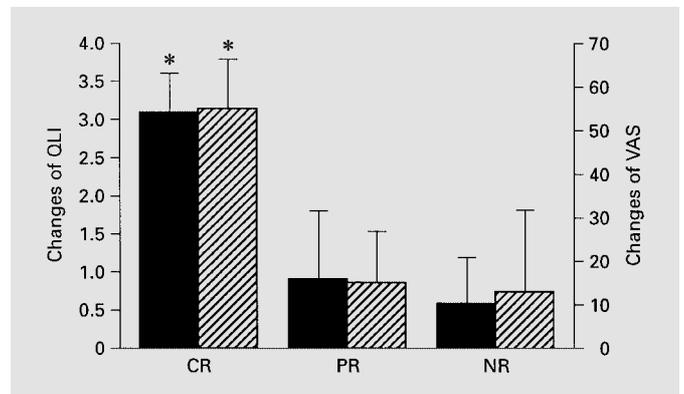


Fig. 1. Changes of the QOL 6 months after TIPS for refractory ascites as assessed by the QOL index (QLI; black bars) and the patients' rating of their QOL on a visual analogue scale (VAS; hatched bars). The improvement was significantly higher in complete responders (CR) as compared to patients with partial response to TIPS (PR) or non-responders (NR).

Recently, we have shown that TIPS is an effective treatment in selected patients with refractory or recidivant ascites [4]. Although an improved QOL has been suggested after the TIPS procedure [5], so far only one study addressed this issue in cirrhotic patients undergoing TIPS for prophylaxis of variceal rebleeding or treatment of ascites, eventually suggesting an improved QOL after TIPS [6]. In this study, however, QOL was assessed using the Karnofsky index [10] referring to an interpretation of QOL restricted to physical performance status. Its coverage of the conceptual domain necessary for a QOL scale has been

deemed inadequate [11]. Consequently, it should be only utilized measuring physical activity levels [12].

Given the encouraging results from our previous randomized trial [4] we did not include a control group of patients who had to continue paracentesis for refractory ascites. One might thus argue that the present study is not controlled. However, all patients included in the present investigation had been pretreated with repeated paracenteses for at least 1 year. Therefore, baseline values of QOL assessment can be regarded as the control values for patients undergoing paracentesis, thus each patient serving as his own control.

To measure QOL we employed the Spitzer QOL index. This is a concise instrument based on evaluation of 5 equally weighted items related to the patients' mood, perception of health, self-care ability, daily activity and social interaction with family or friends [10]. Using this index we could demonstrate an increase of the QOL of cirrhotic patients with ascites after TIPS. This was constant at 3 and 6 months of follow-up. Importantly, the increasing values of the QOL index were paralleled by increasing QOL as rated by the patients themselves on a visual analogue scale. Interestingly, these changes were more pronounced in patients showing complete response to therapy than in patients with only partial response or non-responders. These findings suggest that the influence of

TIPS on the patients' QOL is dependent on removal of ascites without the need for further paracentesis [13].

Interestingly, partial response was associated with only slight improvement of QOL. In our view this indicates that QOL of patients with ascites may not only be influenced by the invasiveness of repeated therapeutic procedures such as paracentesis, but also by the presence (or absence) of ascites which may cause significant abdominal discomfort.

An important factor influencing the overall QOL in patients after TIPS is the incidence of hepatic encephalopathy [14]. In the present study, we did not observe a significant change of the grade of encephalopathy during follow-up. This seems important since encephalopathy may affect the accuracy of patients' rating of QOL. This was confirmed by the patients' rating of fatigue on a visual analogue scale. These findings are in accordance with our previous observation that incidence of encephalopathy is not higher in cirrhotic patients after TIPS as compared to cirrhotic patients treated with paracentesis [4]. Our data strengthens the advantage of TIPS over surgical shunts where severe encephalopathy has been reported in 12–33% of patients [15].

In conclusion, we demonstrate for the first time that TIPS for refractory or recidivant ascites significantly improves the QOL in patients with cirrhosis.

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