

## LETTER TO THE EDITOR

## HEPATORENAL SYNDROME: ROLE OF THE TRANSJUGULAR INTRAHEPATIC STENT SHUNT IN REAL LIFE PRACTICE

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To the Editor,

Few and small studies on Hepatorenal syndrome (HRS) indicate the same clear benefit after trans jugular intrahepatic portosystemic stent shunt (TIPS) [1]. In particular there are no data about patients listed for liver transplantation (LT), or affected by acute alcoholic hepatitis.

HRS is a common complication of end stage liver disease (ESLD) with a high three-month mortality rate (about 90%). HRS type I (HRS-I) is an acute decline in renal function with creatinine levels above 2.5 mg / dL in less than two weeks. The average survival time is two to four weeks. HRS-II is characterized by a slow and progressive deterioration of renal function, and it underlies refractory ascites. HRS is a frequent complication of alcoholic liver disease (ALD) and can be the onset of severe acute alcoholic hepatitis (AAH) [1,2].

LT is an effective therapy.

When waiting for LT, TIPS may be considered an excellent “bridge” procedure. It is known, in fact, that TIPS results in decreased levels of plasmatic aldosterone, renin and noradrenaline within four to six months after placement. This corresponds to a reduction in portal hypertension [2,3].

However, TIPS can be complicated by encephalopathy and liver failure [4].

For some authors [5,6,7,8,9] the use of TIPS shall not be recommended in HRS-I patients. Of course this consideration in relation to the serious clinical condition of these patients is shareable, although in our experience for patients already on a list for liver transplantation or in a particularly severe clinical condition, TIPS, in view of the high mortality rate in the short term, can be a useful ‘bridge’ therapy. We have considered three studies concerning cases that were followed prospectively during the period 1998-2006 and re-evaluated retrospectively.

In the first retrospective study [10], in 18 patients waiting for LT with HRS-II and RA, and were not responding to medical therapy, TIPS placement led to a significant

improvement in the clinical-laboratory parameters. After 12 weeks we witnessed a total resolution of the ascites in 44.5% of cases and a partial remission (compensated ascites) in 55.5%. In addition, the laboratory parameters under consideration (serum creatinine, creatinine-clearance, sodium excretion and urine volume) improved significantly (Table I).

Table I. Renal function before and after TIPS [10].

	Before TIPS	After TIPS
Serum-Creatinine (mg/dL)	1.9+/-0.5	0.9+/-0.3*
Creatinine-Clearance (mL/min)	25.0+/-6.0	70.0+/-19.0*
Sodium Excretion (mEq/L)	8.0+/-2.0	110.0+/-41.0*
Urine Volume (mL/d)	350.0+/-165	2000.0+/-420*

\*p&lt;0.001

In another retrospective evaluation [11], positive results were also reported in cases with HRS-I. In eight patients with advanced ALD (in abstention for six to eight months and without AAH) on the list for LT, the TIPS were put in place after the onset of HRS-I associated with RA and dilutional hyponatremia (Table II).

Table II. Renal function before and after TIPS [11].

	Before TIPS	After TIPS
Serum-Creatinine (mg/dL)	5.2+/-0.9	1.7+/-0.7*
Serum Sodium (mEq/L)	125.0+/- 3.0	138.0+/- 3**
Sodium Excretion (mEq/L)	7.0+/- 3.0	63.0+/- 19**
Urine Volume (mL/d)	260.0+/- 50	1100.0+/-190**

\*p&lt; 00.5; \*\*p&lt;0.01

We observed good management of the portal hypertension monitoring with a consequent LT in seven cases.

TIPS were also placed in nine patients with severe AAH that had been diagnosed for the first time (a model end stage liver disease score of over 20) [12] (Table III). All the patients were affected by HRS-I, oliguria and dilutional hyponatremia. Two patients died (one due to sepsis and one due to liver failure). The other seven cases underwent a transplant within six months.

This experience involved a particular subgroup of patients. The presence of alcohol use disorders (AUDs) in the active phase precludes, according to the traditional selection criteria, the possibility of being subjected to LT. TIPS as a bridge therapy allows not only an improvement in the clinical conditions, but also more time to better evaluate the psychological and psychiatric conditions, as well as the organization of a proper support network, which is necessary for a patient with AUD.

In the literature to date, few studies have evaluated the use of TIPS in cases of HRS. The placement of TIPS in patients on a LT waiting list or with severe AAH has only been reported by our group. The number of case histories of these studies is small, although the results are significant.

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**Table III.** Renal function before and after TIPS [12].

	Baseline	7 days	30 days	p
Serum-Creatinine (mg/dL)	5.0+/-0.9	3.6+/-1.1	1.6+/-0.6	0.4
BUN (mg/dL)	110.0+/- 8.0	109.0+/- 7.0	51.0+/-11	0.007
Serum Sodium (mEq/L)	125.0+/- 4.0	123.0+/- 3.0	135.0+/- 4	-----
Sodium Excretion (mEq/L)	2.5+/- 0.5	7.0+/- 3.0	10.0+/- 3	-----
Urine Volume (mL/d)	250.0+/-40	840.0+/-170	1100.0+/-210	0.003

The placement of the TIPS, in addition to being a bridge therapy, also leads to an increase in the levels of serum sodium. It is known that hyponatremia and renal failure pre-LT correlate with increased mortality rates and longer stays in the ICU during the post-LT period [13,14].

The rapid positioning of the porto-systemic derivation may prevent further permanent renal damage with the need for a possible further liver-kidney transplantation.

Even if HRS (particularly HRS-I) occurs in the setting of ESLD and TIPS is usually contraindicated on this basis [15], in real life practice TIPS, in selected patients non responders to medical treatment [16], can be considered a viable and feasible option, if they are part of a genuinely integrated multidisciplinary activity.

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